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An Address

ON

MEDICO-SOCIAL PROBLEMS FROM AN INSURANCE POINT OF VIEW.

Delivered before the Insurance Institute, Newcastle-upon-Tyne,

BY SIR THOMAS OLIVER, M.D. GLASG., F.R.C.P. LOND.,

PROFESSOR OF THE PRINCIPLES AND PRACTICE OF MEDICINE, UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, NEWCASTLE-UPON-TYNE.

GENTLEMEN,—In forecasting the differences in the personal health, the social and financial position of the young man at 21 and what these are likely to be at the age of 60 are biological and economical problems which concern the promoters of life assurance. Life at 40 is in most men a measure of opportunities neglected or utilised. If a man has not made his way by 40 the chances of his doing so afterwards become fewer and fewer. The successful man admits that there is more pleasure in work than in having secured the rewards of it, that becoming is better than being, since possibility marks the one and finality seals the other.

To what end, then, are the energies of human life directed? It is one of the hard and disappointing incidents of life to see men who for years have worked laboriously in order to make a competency, and who have succeeded, cut off just at a time when they were looking forward to enjoying the autumn of life and the evening of their days. As we travel along life's roadway we do not always pay sufficient attention to the promptings which make for health. In our eagerness to attain material wealth meals are neglected and restless nights endured; in the desire to earn for ourselves a reputation the midnight vigil is protracted and the calls of sleep are disregarded, so that from a health point of view men are too frequently found mortgaging the present for the hope of a future which to them may never come.

Setting aside these byway thoughts, let us approach the subject of this address by raising the question, Does human life to-day as seen in the aggregate differ from what it was half a century ago? No man at 50 is exactly what he was at 20. To-day is not an exact repetition of yesterday, nor are the social life and habits of to-day a replica of 50 years ago. Material wealth gained and held to-day may by to-morrow have slipped from our holding; health and the prospects of it which are ours to-day may not be ours to-morrow. It is against these contingencies and all that follows that life assurance, by syndicating risks, directs its useful energies.

LIFE INSURANCE CLAIMS DUE TO CANCER.

If we were to ask an insurance manager his opinion as to whether there was any change in mortality rates within recent years and any increase upon the claims of his company by one disease more than another, he would unhesitatingly answer that the claims from cancer had risen.

In the report furnished by the late Dr. Claude Muirhead to the Scottish Widows' Fund,[1] in which is given the annual mortality in England from cancer per 10,000 males living at each group of ages and at all ages during three decennial periods,

—	20–25	25–35	35–45	45–55	55–65	65–75	75 and over.	All ages.
1861–70 ...	0·26	0·60	2·04	5·36	12·01	18·62	22·58	2·42
1871–80 ...	0·27	0·70	2·39	7·05	15·88	25·99	29·85	3·12
1881–90 ...	0·37	0·79	2·97	9·98	22·99	37·42	39·14	4·30

it is seen that the rate is "about doubled in the last part of the last period compared with the decennium 1861–70." Compared with the rates from all causes, cancer was responsible for 1 in 102 deaths in 1861 and for 1 in 41 in 1890. The deaths refer to males only. Among the members of this society during 21 years 539 deaths occurred from cancer, the average age at death being 60·385. Other offices tell similar tales. In some as much as 11 per cent. of the claims are from cancer. In one company the proportion of cancer claims to total, which on June 30th, 1901, stood at 8·6, had on June 30th, 1911, risen to 11·14. It is estimated that out of every 7 women and 11 men over 35 years of age one of each dies from cancer annually.

The Increase in Cancer Mortality.

From an insurance, not less than from a medical and a racial, point of view this increase of cancer calls for careful inquiry. Dr. E. F. Bashford, of the Imperial Cancer Research Fund, does not believe that there is an increased death-rate from cancer. The cancer returns are based, he says, mainly upon the number of lives over 35 years of age. It is maintained, therefore, that the incongruity of the age constitution of the population between 1901 and 1911 has led to an over-estimation of the cancer death-rate in the later years of the inter-censal period. Against this must be placed the statement of the Registrar-General that the mortality from cancer in 1910 was the highest on record, and that while there was a slight decrease among females, this was more than counterbalanced by the increase among males. In 1860 in England the mortality for females from cancer was 500 per million; in 1910 it was 1070. A similar increase applies to males. The chances of our escape from the malady are said to be 10 to 1. Although no age, practically speaking, is exempt, the disease falls with increasing frequency after 35 upon each succeeding decade.

Cancer is not confined to the human race. Most of us have seen it in dogs and other domesticated animals. I have seen it in horses, and it occurs in wild animals. Something like cancer develops in plants. It was formerly thought that certain races were exempt—for example, the Japanese—but cancer is met with equally in Japan as in India. It attacks some races in particular parts of the body. Among the Kashmirs the kangri burn variety of the disease occurs in the wall of the abdomen owing to the practice indulged in by the people of applying hot metallic plates thereto, in order to obtain warmth and to maintain the heat of the internal parts of the body.

What is taking place in Great Britain has also been occurring in Germany. From the report of the German Cancer Commission Inquiry, 1900, we learn that cancer is more frequent in the large towns than in country districts, more frequent in women than in men, and that it is less frequent in both sexes in industrial towns and mining centres

[1] Causes of Death among the Assured in the Scottish Widows' Fund, 1874–1894.

than in Berlin and Hamburg. The heavy incidence of cancer in females is explained by the frequency of the disease in the breast and reproductive organs. During the 13 years 1888–1900 the mortality from cancer in Germany in males rose from 373 to 574 per million living persons. As in England so in Germany, the increase of cancer in males is mainly due to disease of the stomach and intestines, a circumstance which suggests that the influences of food cannot be altogether disregarded.

Experimental Investigation of Cancer.

What, then, is cancer? Although not an infectious disease of the particular type which can be conveyed from one person to another like scarlet fever or tuberculosis, it can yet be transplanted from one animal to another. To accomplish this the living cell must be conveyed. When a piece of cancerous tissue is implanted in an animal certain cells of the transplanted mass die. Those which live are the cancer cells proper; the others simply serve as scaffolding which the cancer cells have the power of evolving out of the healthy tissue of their host. Cancer cells retain a distinct individuality of their own, but the soil or tissues in which they grow can be modified by vaccinating affected animals with blood serum and animal juices.

Behind the visible and gross alterations of structure which we call disease there may lie microscopic germs. Attempts have been made to include cancer in the biological type of diseases, and to regard it as the outcome of the operation of a micro-organism which stimulates cell nuclei into activity, thereby leading to an excessive multiplication of the cells. These cut themselves adrift from the normal tissues, and tending to no useful development they lead a parasitic life at the expense of their surroundings. The germ theory of cancer is at present only doubtfully accepted.

More than 15 years ago I used to watch experiments and frequently discuss with Mr. D'Arcy Power the probability of cancer being transmitted to the lower animals. Since then he, Dr. Bashford, and others have succeeded in developing cancer in mice and in grafting the disease from one mouse to another. Experience of cancer in man shows that it is the aged who are more prone to develop the disease spontaneously, but in animals the younger the subject the more susceptible it is to cancer conveyed by grafting. Shortly after the tumour material has been grafted blood-vessels sprout into the mass from the healthy tissues and commence to nourish it. It would seem as if the healthy tissues almost welcomed the intrusion of the foreign material by the readiness with which they enfold it in the embrace of their blood-supply, and yet there is experimental evidence that by vaccination the tissues can be so changed that they cease to offer a permanent abode to a cancer graft. Dr. Bashford has demonstrated that by inoculating animals with defibrinated blood and embryonic tissues taken from healthy mice, these animals can be rendered immune to transplanted cancer. When, therefore, by such treatment immunity is conferred upon an animal, cancerous material when grafted into its tissues instead of growing becomes encircled by a wall of cells formed by the healthy tissues. This forms a barrier of separation between them and the graft, so that, as blood-supply is rendered impossible, the graft degenerates and is thrown off. Any immunity conferred is, unfortunately, only temporary; for by the end of three months not only will fresh grafts succeed, but after that period spontaneous cancer can develop.

Cancer Houses.

The subject of cancer houses has periodically attracted attention. It is not an agreeable subject. Many medical men are of opinion that cancer germs lurk in houses. Here are some of the facts. In a particular village in Norway with 800 people, among whom there was never known to be more than one case of cancer per annum, there occurred a few years ago eight cases. These seemed to group themselves round one case of cancer of the rectum. In a village in France containing 400 persons Dr. Armande reported 11 deaths in seven years from cancer, all, practically speaking, occurring in the same block of houses. Three years later these houses sheltered 17 cancer patients. Dr. Filassier reported upon one house in which during 30 years five deaths had taken place from cancer, all in different families. In Paris a list of 1062 houses was drawn up in which persons had died from cancer. A watch had been made upon these houses. Already in 12 of them there have been two successive cases of cancer.

Mr. D'Arcy Power[2] quotes the following from Mr. Law Webb:—

> In a village about two miles from Mr. Webb's house there are two cottages under one roof. In No. 1 a man died from cancer of the rectum at the age of 28. The house was next occupied by M. and his wife. M. died from cancer of the stomach two years after the death of the previous tenant. His widow continued to live in the same house and died ten years later from cancer of the rectum. After the death of M.'s widow the house was occupied by three maiden ladies. Of these, Miss P. died from cancer of the womb, and three years later Miss F. died from cancer of the stomach. In none of these persons was there any blood relationship nor a family history of cancer. In another instance cancer seemed to be located in a single room. In a house in a London suburb, where the barmaids of a certain restaurant were lodged, the housekeeper, Miss B., died of cancer of the stomach in 1884. Miss T., who had lived in the house for 20 years, succeeded to her place and occupied the bedroom. She died in the following year from cancer of the liver. Mrs. J., who had lived in the house for eight years, succeeded to the position and occupied the bedroom vacated. Eight years afterwards she died of cancer of the breast. No further case of cancer occurred in this house after disinfecting with sulphur and burning the bedding.

My attention has been drawn to a series of cases of cancer in a short street not one-twelfth of a mile in length in a small town. The houses are entirely of a residential character. Between the 15 years 1893 and 1908 there died from cancer in this street 19 persons and one dog. In some of the houses there had occurred two or three cases. As in nearly all the patients there was no hereditary history of the disease, the large number of deaths among successive occupants of the house has suggested that the matter is more than a coincidence.

The Influence of Locality.

The Cancer Research Association does not encourage the suspicion which these details suggest. Dr. Bashford does not attach to cancer houses the importance the public seems disposed to, and yet the influence of locality, as shown, for example, by the frequency of the disease along the banks of rivers, cannot, although unexplainable, be ignored as a factor in the causation of cancer.

The lie of the ground is regarded by Mr. C. E. Green[3] as playing some part in the causation of cancer in Nairnshire, especially when associated

[2] Practitioner, 1899, vol. i., p. 424.
[3] Edinburgh Medical Journal, 1912.

with the incidence of the combustion of coal. Nairnshire has the highest cancer death-rate in Scotland. It has a population of 9000; of this number 5800 live in the town of Nairn, and the remainder is distributed over three country districts. Mr. Green found that while cancer is extremely prevalent in some districts of Nairnshire it is absent in others. The districts which are free from cancer are those where *peat*, and not *coal*, is burned. So frequently has he observed this fact that he is disposed to attribute cancer to the combustion of coal rich in sulphur, especially in districts where the houses of the people are on sloping sites and in hollows.

This supposed connexion of the combustion products of coal and cancer is no new theory, for we have been long familiar with chimney sweep's cancer and the cancer occurring in men who handle pitch and tar.

Traumatism and Malignant Disease.

In the causation of cancer many possibilities have to be considered. There is the question of heredity, and following it the influence of the mode of life, the character of the food, also the fact of injury. In their desire to find a cause for everything men and women the subjects of a malignant growth frequently seek to explain its presence by the history of an injury. Years ago any connexion between a blow on the chest wall and a cancerous growth was regarded as very unlikely; to-day the causal relationship is admitted. How far local injury can determine in a particular part of the body the location of a mass of cells which separate themselves off from the neighbouring tissues, and lead a riotous life of their own sufficient ultimately to cause the death of their host, is a subject of great importance to insurance companies. The question comes before you in matters of compensation where cancer has caused death and there is alleged to have been an injury.

Just how traumatism causes malignant disease cannot be very well explained, unless it be in the diminished resistance of the tissues which the accident produces. But to what is there a diminished resistance? In childhood a bruise, with its attendant discolouration, effusion, and signs of reactive inflammation, gradually disappears and leaves no trace behind; but in middle life and beyond it something apparently is left, some of the cells of the injured part are never quite exactly the same as before. It may be that they are less resistant to a special germ or toxin—at any rate, some functional alteration occurs in the cells of the locality whereby they acquire structural tendencies hitherto foreign to them, and which force them to embark upon a career of their own which makes for death and not for the well-being of the host.

Transmission of Cancer.

What is transmitted? and from whom? Since there is no direct transmission of the disease, can a tendency to it be transmitted, and if so, what do we mean by a tendency? Just as some persons are more susceptible to infectious fevers, others to tubercle, so there may possibly be inherited from parents a peculiar vulnerability of the tissues, whereby at a particular age they become liable to cancer. But we cannot tell who are prone to cancer; besides, in all instances cancer is at first a local growth, which if removed early may never recur. On the other hand, it must be admitted that heredity plays not an unimportant, although a small, part in the disease. The action taken by insurance offices in regard to this question is based upon experience. There are offices which will have nothing to do with an application where two members of a family have died from cancer, and yet the number of cases of spontaneous cancer far outstrips those in which there is a history of heredity. One peculiarity about hereditary cancer is that the disease frequently appears at an earlier age in the offspring than in the parent.

Is there any law of transmission? Does the father hand on to the son and the mother to the daughter, or is it a case of cross transmission? I have no British statistics bearing upon these points, but from the report of the German Cancer Commission I find that in 82·9 per cent. of all cases of cancer hereditary influences can be excluded—that is, in 17·1 per cent. hereditary influences, direct or indirect, were more or less probable. In 84·1 per cent. of 3408 male patients there was no hereditary history; in 4·7 per cent. there was a history of the father having had cancer; and in 4·3 per cent. the mother had suffered—that is to say, a total of 9 per cent. Of 5739 female patients heredity could be excluded in 82·2 per cent.; in 7·2 per cent. there was a history of the disease in the mother and of 3·1 in the father, giving a total of 10·3 per cent. of hereditary influence in female cancer. Not only, therefore, does the mother's influence weigh more for the transmission of cancer than the father's, but the incidence of the disease in the female is more than twice as great as that of the male, although fathers transmit to their sons slightly more frequently than they do to their daughters.

Influence of Heredity: Experimental Evidence.

The question of heredity is equally interesting when approached from the experimental point of view, and for this I cannot do better than allude to the experiments carried out at the Imperial Cancer Research Laboratories in London.

The incidence of cancer in female mice, both of recent and remote cancerous ancestry, is greatest between the ages of 13 and 16 months, and next to that between 16 and 19 months. Dr. Bashford found that the percentage of total deaths due to mammary cancer in female mice, where the mother, also one or both grandmothers, or all three, were cancerous, was for the ages stated 30·8 and 28·8; while for female mice of remote cancerous ancestry, where the mother and both grandmothers were not cancerous, the numbers were 15·5 and 11·5—that is to say, the incidence of spontaneous cancer of the breast in mice of recent cancerous ancestry was nearly double that in mice of remote cancerous ancestry. If cancer of all the organs is included, the liability of mice of recent cancerous ancestry is even greater: 1 in 5 of all female mice of recent cancerous ancestry died from cancer, while only 1 in 9 of those of remote cancerous ancestry.

The data obtained by experimental inquiry go to support our opinion of the disease in man that, however impossible to explain it, the part played by heredity in the causation of the disease cannot altogether be ignored.

[The subject of the albuminuria of adolescents, so-called functional, physiological, or postural, was dealt with at length, the audience being reminded that insurance companies attributed less importance to it to-day as a disqualifying incident than 25 years ago.]

ATHLETICISM.

I have examined champions in all realms of sport: short- and long-distance runners, football players, cricketers, rowers, tennis players, and cyclists. Some of them have consulted me professionally on account of a breakdown in their health, others were examined for life insurance.

The value of athleticism to the individual is in a large number of instances over-rated. Athletic exercises doubtless confer physical advantages, they brace a man up, they make him more resistant to fatigue, and they keep him out of mischief, but they do not confer immunity to disease. It is a well-known fact that it is frequently the healthiest-looking men and women, also the most florid, who succumb most readily to fever, to acute illness, and who cannot go through a serious surgical operation so well as the slimly built and delicate. Many athletes whom I have known have died from pulmonary tuberculosis, others from heart disease.

Hard athletic exercise is not always the best training for young men who are going to become clerks or who are likely to lead a sedentary life. One of the consequences of hard rowing, running, and football playing is an increase in the size of the heart, especially of the left ventricle. While enlargement of the heart may be good enough for the youth of 22 who takes exercise freely, it is not the best for a sedentary clerk of 30. The man at 30 would find himself with more heart than he requires; his circulation would be rather embarrassed than lightened; for it is difficult to tone down the heart to the diminished needs of the economy.

Athleticism and office work are not absolutely antagonistic to each other, but as the "thirties" are reached athletic exercises must be moderated. Only the other day a man of splendid physique, a football player, told me that he was giving up football as he had found, now he had passed the age of 25, that the game took more out of him than it used to. He thought that the best play of a man was over by the time he had reached 30 years of age.

Later Effects of Hard Muscular Exertion.

The professional football player is known to have a very short number of years in which to earn a reputation and make a competency. From a physical point of view, how many of these men are worth much after 30? To what extent has the muscular exercise fitted those men, drawn as many of them are from the artisan class, for doing even as hard work as they did before taking up the profession of football playing? Medical experience shows that by the age of 25 much of the elasticity of professional football players has gone. They are older men at 35 than their quondam mates who have not indulged in the hard muscular exercise. As regards injury, too, the recuperative powers of the professional football players after the age of 25 are diminished.

If the occupation of football playing is hard, two circumstances at least help to minimise its effects, and these are: the men are constantly in training and the matches are seldom more than of two hours' duration. Indiscriminate training may be harmful. For a city clerk or a salesman a 10 or 12 miles run with the "fox and hounds" on an occasional Saturday, the hard game of football or hard rowing on a weekly half holiday, if not kept in moderation or trained up to, may impose upon the heart a strain with undesirable consequences.

After-Histories of Boat Race Crews.

Forty years ago Dr. John E. Morgan, one of the physicians of the Manchester Infirmary, gives in "University Oars" an account of the after-history and health conditions of the crews which had rowed in the Oxford and Cambridge boat races. Contrasting the two forms of exercise, Dr. Morgan is of opinion that men who in running cover ten miles in one hour experience greater strain than those who row in the University boat race. He says that he has never seen any of the men lifted out of the boats in the exhausted condition to which Professor S. H. Haughton of Dublin draws attention. Nor have I seen any of the men thus removed; but as examiner for several life insurance offices three men at least have told me that when rowing in a competition they were completely blind on reaching the goal, they could not stand, they had to be lifted out of the boat. Within recent years the death of a cyclist after a long-distance run, the fatal collapse of a boy at one of the public schools of England in or shortly after a "fox and hounds" chase, and the all but fatal fall of a Marathon runner with his hand touching the goal, remind us that acute self-poisoning of the individual by the waste products of his muscular metabolism is more than a theoretical possibility.

There will always be found some men undertaking excessive muscular exercise when constitutionally not fit for it. Taking the years 1829–1869, Dr. Morgan found that 294 men had rowed in the Inter-University boat race. Years afterwards, of these 294 men 17 were stated to have suffered from the effects of the exercise—i.e., 1 in 17. So far as a tendency to heart disease in rowers is concerned, Dr. Morgan found very little difference between the mortality observed amongst University oars and what prevails amongst other classes of men of the same age, but he states that the deaths are too few from which to draw conclusions. It should be remembered that a large percentage of the men who have rowed in the Inter-University race subsequently settle down as private gentlemen, as country clergymen, or they become professional men. All of them are therefore less exposed to the causes of heart disease than the artisan classes whose work is hard.

From Dr. Morgan's figures it appears that 39 per cent. of the men benefited in health by boat racing, 55 per cent. were in no way injured, and 6 per cent. were injured. In some instances the training did good. If even 6 per cent. of the men were made worse by the training, then all is not right in athletic exercise, for no training undertaken to develop the body should become detrimental to it.

Tendency to Overvalue Athletic Exercises.

It is an interesting fact about work and physical exercises that movement alone does not seem in the adult to develop muscle to any extent. The arm of the sempstress which is in motion all day long and the hands and arms of the file-cutter do not improve. On the contrary, in the case of the file-cutter many of the fine muscles of the hand atrophy owing to the strain imposed upon them. There must be energetic muscular contraction, the action must be forcible, and there must be resistance. While physical exercises encourage development of the muscles concerned, and indirectly improve the muscles of the body generally, they tend, if severe, to cause an increased thickening of the heart as well. It is the inability on the part of the individual who is leading a sedentary life in the

office or elsewhere to utilise in later years this increased thickening of the wall of the heart which robs indulgence in athletic exercise of much of its value. The advantages conferred by athleticism are neither uniform nor equal. The symmetry of the well-trained body may command admiration, but in most of the ordinary occupations of life it is a question whether the more perfected anatomical form renders the individual abler to cope, for example, with the worrying details of commercial life than is the case with his less perfectly developed muscular colleague, whose physical exercises may be summed up in the walk from the home to the office and from the office to the home, and an occasional game of golf.

The tendency of the age is to over-estimate athletic exercises. It has yet to be shown that from those public schools which pride themselves in games and physical culture rather than in intellectual training, the longevity of their pupils is greater, and that when the work of life is summed up they have taken as good a place as those who were pupils in colleges renowned more for a happier mean in mental training and physical exercise.

Compulsory Military Training.

There is one useful side of physical training which should be encouraged partly on account of the discipline which accompanies it and the object sought to be achieved. I refer to the advantages to the nation as a whole, and to the young men which compose it, of compulsory military training. Discipline, coördination of training, mental and physical, but above all inculcation in the young men of a sense of duty and a deepening of the spirit of patriotism, will do more to fit a nation to play its part in the affairs of the world than the unbridled steeping of its young manhood in sport with opportunities for higher things lost and time misspent in the worship of muscle and in the pursuit of means to obtain it.

HOOKWORM DISEASE.—The Colonial Office recently announced that Mr. Wickliffe Rose, director of the International Health Commission, has left London for Egypt, Ceylon, and the Malay States. The Commission is an offshoot of the Rockefeller Foundation, and was founded to continue in foreign countries the campaign against ankylostomiasis, which the Foundation has conducted with success in the United States. For the present the Commission is confining its attention to the British possessions and Egypt, and Mr. Rose when in London conferred with the committee appointed by the Colonial Office to coöperate in the work of the Commission.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.—The usual monthly meeting of the executive committee of this society was held at 429, Strand, London, on March 20th, Dr. F. J. Allan being in the chair. From the accounts produced it was shown that although the expected sickness had increased the amount paid in claims was less than that for the same month in the preceding year. It is almost unprecedented for the first two months of the year to show a profit on the expected sickness. New business figures were a record for February, and the large numbers of these, and the proposals for additional sickness benefit now being dealt with, point to the probability of the good figures being maintained. It was decided at this meeting to subscribe to the British Dental Association Benevolent Fund, the society being open to duly registered dental practitioners. The rates charged by this society are almost 20 per cent. less than any other society or company offering similar benefits. Particulars can be obtained on application to Mr. Bertram Sutton, secretary, 33, Chancery-lane, London, W.C.

Hunterian Lecture

ON

THE PHYSIOLOGY AND PATHOLOGY OF UTERINE HÆMORRHAGE.

Delivered before the Royal College of Surgeons of England on Feb. 13th, 1914,

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(*With Illustrative Plates.**)

(*Concluded from p. 885.*)

PATHOLOGICAL UTERINE HÆMORRHAGE.

IN considering excessive uterine bleeding apart from gross physical signs, the first point I would emphasise is that the amount of red uterine discharge cannot be regarded as a criterion of the severity of hæmorrhage and as an index of the quantity of blood lost. The admixture with uterine secretion and the occurrence of hæmolysis introduce difficulties, and it is therefore impossible to fix a standard of the actual amount of blood lost. We can estimate the total quantity of menstrual fluid, but to differentiate between the amounts of the two chief constituents—viz., secretion of the uterine glands and blood—no means are at present available. The colour of the discharge is but a rough index and is obscured by alteration of hæmoglobin through admixture with the vaginal secretions. A differential blood count is useless because we have no standard with which to compare our results; centrifugalisation and measurement of the deposit is unreliable owing to the varying degree of hæmolysis and cytolysis. Hæmoglobin in menstrual fluid is dark, and owing to hæmolysis a very small quantity serves to colour a large amount of secretion. It follows therefore that an alleged severe hæmorrhage may consist largely of the secretion of the uterine glands with a comparatively small admixture of blood.

Two factors remain upon which we can form an approximate opinion of the degree of hæmorrhage. The first and most important is the clinical effect produced upon the patient by the supposed bleeding. If, in spite of repeated severe losses, she remains in good health and shows no degree of anæmia, we may assume that the uterine discharge consists chiefly of the secretion of the glands rather than excess of blood. The second factor is the occurrence of clots in the discharge. These are, of course, direct evidence of the amount of blood lost, and in severe hæmorrhages are usually present. Their occurrence indicates either (1) that the uterine secretion is deficient in thrombolysin; or (2) that too large a quantity of blood is present for the thrombus to be digested by the available enzyme; or (3) that the escape of blood from the surface of the endometrium is too rapid for the fluid to come in contact with the fibrinolysin present in the uterine secretion. I believe that all of these factors are at different times concerned in the occurrence of clotting in the menstrual discharge. Nature's ideal is to produce an exact balance between the thrombotic and thrombolytic functions of the

* The illustrative plates and descriptions will be found in the first part of the lecture appearing in our issue of last week.

endometrium, but that this equilibrium is easily upset is shown by the fact that 50 per cent. of all women at some time or other in their lives pass clots.

Factors in the Production of Excessive Bleeding.

A consideration of the essential machinery involved in the production of uterine hæmorrhage suggests that excessive bleeding may arise from: (1) factors in relation with the endometrium; (2) factors associated with the endocrinous glands, especially the ovary. To these two primary groups I would add a third—viz., factors concerned in the abnormal production of pelvic venous stasis. It appears probable that under Group 1 are included many cases of so-called menorrhagia, whilst Groups 2 and 3 are more closely related to metrorrhagia or intermenstrual bleeding. At the same time these groups undoubtedly overlap with the production of irregular hæmorrhage, so that it is not possible to draw any hard-and-fast line.

The Endometrium in Relation to Pathological Uterine Hæmorrhage.

When discussing the physiology of menstruation I attempted to prove that under normal conditions the degree of uterine hæmorrhage is very much under the control of the endometrium. As the blood escapes into the tissues it is brought into contact with cells rich in thrombokinase, and this induces rapid coagulation. The thrombus is then disintegrated by the enzyme contained in the secretion of the corporeal glands. These two processes are normally balanced, but it will be obvious that abnormalities in either may lead to the production of excessive bleeding. I would suggest that cases of pathological hæmorrhage of endometrial origin fall under one of the two following headings: (*a*) Diminished thrombokinitic power of the endometrium from a deficiency of thrombokinase; (*b*) hypersecretion of the uterine glands, producing excess of thrombolysin.

It is possible to bring forward clinical evidence that both these factors are concerned in the production of extreme uterine hæmorrhage. I do not wish to occupy your time in detailing clinical notes, but I may observe that on several occasions when collecting blood from the vagina in cases of severe menorrhagia I have noted that a few clots have appeared in the fluid on standing. This phenomenon appeared strange until I appreciated the fact that it was simply a delay in the normal function of clotting due to diminution in amount in one of the essential constituents for the production of thrombin. In these cases clots form in the vagina instead of in the uterine cavity. They escape with the menstrual fluid, and if large are noted by the patient. Frequently quite large clots are passed without any pain, the reason being that the thrombi are formed in the vagina and do not pass through the cervical canal. If curettage is performed in these cases it is not infrequently found that the endometrium is atrophic and very little tissue can be removed. This is so with the fibrotic uterus and with the atrophy of old age. (Fig. 9.) Hæmorrhage when it occurs under these conditions is severe because the essential factors for controlling the same are absent.

The second factor that I have noted in the production of extreme bleeding is hypersecretion of the uterine glands. I can conceive that variations occur both in regard to the amount of this discharge and in the concentration of thrombolysin in a normal quantity of secretion. An allusion has already been made to the fact that such excessive secretion may lead to error in estimating the amount of blood lost from the uterus. It is probable that this excess also at times leads to a destructive action upon the protective thrombus in relation with the endometrium. Thrombosed capillaries are rendered patent and the hæmorrhage continues just so long as the secretion is poured out in excessive quantities. The clinical type of case that I will lay before you as an example of this mode of bleeding is the condition variously described as "diffuse adenoma," "adenomatosis," or simply "glandular hypertrophy of the endometrium." When the menstrual fluid of such patients is investigated I have found that clots are rarely present. The discharge is always profuse and thrombolytic power well marked. In passing, it is of interest to note that excessive thrombolysis probably accounts for the profuse hæmorrhage occurring with a simple adenomatous polypus. In such polypi the glandular elements are usually in considerable excess in the stroma. When protective thrombosis occurs the clot is dissolved by the secretion of the abnormal glands and a recurrence of the hæmorrhage ensues. After all, a mucous polypus is simply a localised variety of the major condition of diffuse glandular hypertrophy.

The Importance of Investigation of the Menstrual Discharge.

It appears desirable, therefore, that a careful investigation should be made of the discharge in every case of obscure uterine bleeding. I am afraid that there has been a tendency to avoid such examination in the past, partly no doubt owing to a wish to respect the feelings of the patient. In the presence of severe hæmorrhage, however, I have never encountered the least objection on the part of patients when the necessity for such examination was placed before them. The points in the investigation to which special attention should be directed are: (1) The presence or absence of thrombi within the vagina; (2) the formation of thrombi within the discharge after the fluid has been allowed to stand; (3) the thrombolytic power of the secretion; (4) the calcium content of the same; and (5) the microscopical characters of the deposit obtained after centrifugalisation of the fluid collected directly from the uterine cavity in order to obtain an index of the degree of tissue destruction.

Influence of the Endocrinous Glands upon Uterine Hæmorrhage.

Time will not permit me to enter at length into a full consideration of the intricate relationship which the endocrinous glands bear to the question of uterine hæmorrhage, nor is it my desire to do so, since I can add very little that is new to the mass of facts that have accumulated within recent years upon the interaction of the various hormones.

Since uterine hæmorrhage in the human female is in such intimate relationship with the activity of the uterine glands, it follows that factors which produce alteration in the function of these glands will also cause anomalies in the former. The organs chiefly concerned in this are, of course, the ovaries, and their removal usually leads to cessation of menstruation. Proof is gradually accumulating which tends to show that in a considerable number of cases the cause of excessive uterine hæmorrhage lies in the ovary. Quite recently three cases have

come under my notice where double ovarian hyperplasia was associated with extreme overgrowth of the endometrium and profuse irregular uterine hæmorrhage. Curettage had been performed in two of these cases, with relief lasting for about nine months. At the end of this time the bleeding recurred in all its original severity. Fig. 14 shows a photograph of one of the ovaries removed from a lady, aged 32, who had suffered from very extreme bleeding since puberty. Marriage had aggravated the condition, and when I saw her she was suffering from an extreme degree of secondary anæmia. By the side of the hyperplasic organ I have placed a normal ovary from a patient of the same age, the difference in size being very apparent. Such hyperplasia, I believe, may be a developmental abnormality at puberty. At times also it appears to be associated with masturbation and sexual excess,

FIG. 14.

Normal ovary from nullipara, aged 32.

Hyperplasia of ovary from nullipara, aged 32. Hyperplasia principally affects stroma: Graafian follicles few and small.

but its real cause is difficult to define. The endometrium in these cases is very hypertrophic and shows marked activity of the glandular elements, as indicated in Fig. 10.

I have already referred to the influence the ovary appears to have over the amount and physiological properties of the secretion of such glands. If, in the future, it is proved that a portion of the uterine secretion is reabsorbed and produces vaso-dilatation, one of the factors in the production of uterine hæmorrhage can be removed by reducing the quantity of ovarian secretion. Also, by diminishing the thrombolytic element, another of the essential factors productive of prolonged hæmorrhage is placed in abeyance. Physiological and pathological evidence therefore appears to point to the fact that partial removal of the ovaries is indicated in very excessive and uncontrollable uterine hæmorrhage associated with glandular hypertrophy. At the same time it should be recognised that even double oöphorectomy does not control every case of uterine bleeding. Whether this is due to a transference of ovarian function to another of the endocrinous lands, particularly the thyroid, or whether it is due to defects in the uterus itself, it is impossible at present to state with certainty. We know, for example, that the thyroid frequently hypertrophies after the normal or artificial menopause. There is also evidence to show that sexual desire is not lost after removal of both ovaries alone or with the uterus. On the other hand, the continuation of bleeding in the presence of definite uterine lesions, more particularly fibrosis, when both ovaries have been ablated, points to the uterine condition as being the essential cause of the hæmorrhage in such cases.

Whatever the stimulus to menstruation may be, whether ovarian or a combination of ovarian and other hormones, it appears from the examination of numerous curettings obtained *in abnormal cases of uterine hæmorrhage, that all portions of the endometrium are not affected in the same manner at the same time.* This is well shown in Figs. 11 and 12 (see plate) which represent different aspects of curettings from the same uterus. It will be noticed that in Fig. 11 the glands are large and the endometrium in an active stage. In Fig. 12, on the other hand, the adenomatous elements are small, the stroma abundant, and the tissue evidently in the post-menstrual stage. This, I believe, has a distinct bearing upon the duration of uterine hæmorrhage. In curettings taken from a comparatively normal uterus during a period of short duration all portions of the endometrium appear alike and correspond to the active stage described by Adler and Hitschmann. When hæmorrhage lasts for 10 to 14 days, however, the endometrium frequently shows very different appearances at different parts of the section. There has been a tendency to regard this appearance as a definite lesion in the endometrium and call it by that well-worn and long-suffering term "endometritis." This I regard as erroneous. There is no evidence of inflammation when such sections are stained for plasma cells, and the appearance is, I believe, produced by the ovarian hormone acting in small quantities over a lengthy period and stimulating the endometrium to activity in sections. Clinically, such cases not infrequently follow labour and abortion, and account for many of the examples of menorrhagia and irregular bleeding which occur at intervals remote from pregnancy, but apparently dating from the same. Curettage in such cases reveals no products of conception, and the reason for the bleeding is often obscure. I suggest that the cause lies in a functional defect of the delicate mechanism called into action at each menstrual period.

The same is apparent at the commencement and end of sexual life. The balance is extremely sensitive, and when once disturbed by any of the great physiological epochs of life—viz., puberty, pregnancy, or the menopause—a considerable degree of tuning up is required before it is in complete working order.

Hæmorrhage at Puberty and at the Menopause.

As is well known, the two extremes of sexual life are very frequently marked by excessive uterine hæmorrhage. When consideration is given to the various factors that I have discussed in the

production and control of bleeding, this is really not a matter of great surprise. The reason that excessive hæmorrhage occurs in young girls is probably because the hormonic stimulus is developed before the means of controlling its results are elaborated; in other words, it is a lack of development in which both endometrium and possibly metrium take part. In those cases of hæmorrhage at puberty where I have examined the uterine discharge, clots have been present in the vagina in a large proportion. In two no clot was present in the uterus, although small clots were found in the fluid contained in the vagina. This suggests delayed coagulation of the fluid due to deficient thrombokinitic power of the endometrium, the result of functional non-development. The great majority of these cases get well and radical measures are very rarely called for. Curettage is occasionally performed, but as a rule without permanent success. This is explained on the pathological basis I have suggested above.

A similar condition prevails at the other extremity of sexual life. The balance is again upset, but on this occasion the loss of function is due to atrophy and degeneration rather than to lack of development. It appears that in many cases the ovarian function is the first to light its fire and the last to be extinguished. Should its hormone be active after the endometrium with its thrombokinase has atrophied and the musculature in the metrium is degenerated, hæmorrhage invariably results. The very extreme and profuse losses that occur at this period of life are practically always associated with numerous clots. Hæmorrhage occurs rapidly although a loose clot may be present in the uterine cavity. The condition, in fact, in many ways bears a close resemblance to the oozing from a wound in a subject of hæmophilia.

HÆMORRHAGE IN RELATION WITH ORGANIC DISEASE OF THE INTERNAL SEXUAL ORGANS.

The last portion of my lecture deals briefly with the subject of uterine hæmorrhage in connexion with organic disease of the internal sexual organs. This aspect of the subject is, of course, a very large one, and in the short time at my disposal it is impossible to do anything like adequate justice to the facts. I have arranged the material in tabular form (Table IX.) as being most convenient for reviewing rapidly the relationship which uterine hæmorrhage bears to the diseases involved. The material employed for this table was obtained from the case-books of all patients admitted to the gynæcological wards of the General Hospital, Birmingham, during the years 1909–1913. I am much indebted to Professor Thomas Wilson for the use of the same.

The following classification has been employed:—I. Uterus: (*a*) displacements; (*b*) fibrosis and chronic metritis; (*c*) endometritis. II. Ovary: (*a*) cystomata; (*b*) malignant neoplasms; (*c*) displacements; (*d*) hypertrophy. III. Pelvic Inflammation: (*a*) Fallopian tubes; (*b*) ovary; (*c*) peritoneum. The information derived from the table may be summarised as follows.

Uterus.

1. *Uterine displacements.*—It is evident that displacements of the uterus do not directly produce excessive uterine hæmorrhage. Thus, out of a total of 88 cases of retro-displacements only 38 gave evidence of menorrhagia, and of the latter only 15 had intermenstrual losses. In those cases where hæmorrhage was present a careful review of the

TABLE IX. (*a*).—*Showing Incidence of Excessive Uterine Hæmorrhage in Relation with Organic Disease of the Internal Sexual Organs:*—

A.—Uterus.

M. = married. S. = single.

		Cases.	Menorrhagia.	Metrorrhagia.
(*a*) Displacements.				
Retro-displacements.				
Simple	M.	34	15	4
	S.	16–50	4–19 (38%)	4–8
Complicated with—				
(*a*) Adhesions		27	10	4
(*b*) Endometritis		4	4	3
(*c*) Prolapse of ovary		2	1	0
(*d*) Rupture of perineum		2	1	0
(*e*) Hæmorrhoids		1	1	0
(*f*) Torsion of spleen		1	1	0
(*g*) Mucous polypus		1–38	1–19 (50%)	0–7
Anteflexion.				
Simple	M.	0	0	0
	S.	3–3	0–0	0–0
Complicated with—				
(*a*) Vaginismus		1	1	0
(*b*) Metritis		1–2	1–2	1–1
Procidentia.				
Degree—1st	M.	22	3	0
	S.	1–23	0–3	0–0
„ 2nd	M.	32	5	1
	S.	3–35	1–6	0–1
„ 3rd	M.	29	4	1
	S.	2–31	0–4	0–1
Grand total (procidentia)		89	13 (14·6%)	2
(*b*) Fibrosis and chronic metritis—				
Metritis		18	15	11
Fibrosis—				
(*a*) Hypertrophic		8	8	4
(*b*) Atrophic		1–27	—23 (85·1%)	1–16
(*c*) Endometritis	M.	61	46 (76·7%)	24
	S.	12–73	10–58	5–29
(*d*) Hypertrophy of endometrium—				
Localised (mucous polypus)		18	17	13
Diffuse (glandular hypertrophy)		10–28	10–27 (96·4%)	10–23

B.—Ovaries.

(*a*) Cystomata*—			
Cyst-adenoma (multilocular cyst)	56	11	5
Pseudo-myxoma	2	0	0
Papillomatous	13	3	1
Follicular	4	2	3
Lutein	6	3	2
Dermoid	11	0	0
Parovarian	8–100	1–20 (20%)	0–11
(*b*) Malignant neoplasm—			
Carcinoma	12	2	1
Sarcoma	1–13	0–2 (15·3%)	0–1
(*c*) Prolapse of ovaries	6	2	2
(*d*) Hyperplasia of ovaries	3	3	3

C.—Pelvic Inflammation.

(*a*) Fallopian tubes—			
Salpingitis	9	3	0
Hydrosalpinx	5	1	0
Pyosalpinx—			
Single	8	4	1
Double	27	13	5
Hæmatosalpinx	3–52	1–22 (42·3%)	1–7
(*b*) Ovaries—			
Salpingo-oöphoritis	36	18	8
Tubo-ovarian cyst or abscess	2	0	0
Hæmatoma of ovary	10	6	2
Ovarian abscess	4	1	0
Suppurating lutein cyst	11	5	2
Suppurating cyst-adenoma	1–64	0–30 (46·8%)	0–12
(*c*) Peritoneum—			
Pelvic peritonitis—			
(1) Simple	20	5	1
(2) Tuberculous	9	1	0
(3) Pneumococcal	1	0	0
Pelvic abscess	30–60	9–15 (25%)	3–4

* Of the 20 cases (cystomata of ovaries) associated with excessive hæmorrhage 1 was due to fibroid polypus, 5 had always noted menorrhagia, 3 were connected with the menopause, and 2 dated the irregular

bleeding from a recent pregnancy. One was associated with plumbism, and another with inflammatory disease in the pelvis. The percentage of hæmorrhage due to cause unknown is therefore only 7.

TABLE IX. (*b*).—*Summary of Table IX.* (*a*).

	Cases.	Excessive hæmorrhage.	Percentage.
Uterus.			
(*a*) Displacements—			
Retro-displacements—Simple	50	19	38
Complicated	38	19	50
Anteflexion—Simple	3	0	0
Complicated	2	2	0
Prolapse	89	13	14·6
Total displacements	182	53	29·1
(*b*) Fibrosis	27	23	85·1
(*c*) Endometritis	73	56	76·7
(*d*) Hypertrophy of endometrium—			
Localised (polypus)	18	17	94·4
Diffuse	10	10	100·0
Total	310	159	51·2
Ovaries.			
(*a*) Cystomata	100	20	20
(*b*) Malignant neoplasm	13	2	15·3
(*c*) Prolapse	6	2	33·3
(*d*) Hyperplasia	3—122	3—27	100—22·1
Pelvic Inflammation.			
(*a*) Fallopian tubes	52	22	42·3
(*b*) Ovaries	64	30	46·8
(*c*) Pelvic peritonitis	80—176	15—67	25—38

TABLE IX. (*c*).—*Contrasting the Incidence of Menorrhagia in Uterine, Ovarian, and Inflammatory Disease.*

	Cases.	Excessive hæmorrhage.
Diseases of uterus	310	51·2%
Diseases of ovaries (including inflammation)	186	30%
Inflammatory diseases (Fallopian tubes and peritoneum)	112	33%

case histories did not show that the displacement was more acute than in patients where no bleeding was present. On the other hand, the proportion of irregular bleeding is considerably greater in the complicated cases than in those that are simple. With prolapsus uteri it was found that out of a total of 89 cases only 13 showed evidence of excessive bleeding. It appears therefore that uterine displacements cannot be regarded as a cause of excessive losses.

2. *Fibrosis and chronic metritis.*—This condition of obscure origin is in a very large proportion of cases associated with uterine bleeding. Thus, in a total of 27 cases, 23 suffered from menorrhagia. It is interesting to note that in my series all the patients were married. In a paper recently communicated to the Obstetrical Section of the Royal Society of Medicine, I have drawn attention to the fact that some cases of fibrosis uteri appear to bear a relationship to syphilis; thus out of a total of 16 cases, 7, or 43·75 per cent., gave a positive Wassermann reaction. Attention has also been drawn to this aspect of the subject by Miss McIlroy.

Sir John Bland-Sutton has suggested that fibrosis uteri is the result of septic infection and is analogous to the fibrosis of the Fallopian tubes seen in chronic pyosalpinx. This view is certainly feasible, since the majority of cases occur in those patients who have run the risk of infection by repeated pregnancy or otherwise. At the same time it is strange that the infecting agent should remain in the uterus and not spread upwards to the Fallopian tubes and peritoneum. In my limited experience it is rare for the Fallopian tubes to show signs of any inflammation. Also in a series of 12 cases of fibrosis uteri that were examined bacteriologically by Dr. Sholto Douglas (of the University of Manchester) and myself, cultures from the uterine cavity invariably proved sterile. Such an argument, however, is not conclusive evidence that the fibrosis is *not* the result of old infection, since the causal agent may be dead or so attenuated as to be unrecognisable by the bacteriological methods at our disposal.

Hæmorrhage in cases of fibrosis uteri is probably due to two factors: (*a*) changes in the endometrium to which reference has already been made; and (*b*) loss of contractility of the metrium owing to its replacement by fibrous tissue. The amount of blood conducted to the endometrium cannot be regulated, and the latter is powerless to deal with the quantity at its disposal.

3. *Endometritis.*—In the figures concerned with endometritis it will be noted that out of a total of 73 cases 56 were associated with menorrhagia and 29 with metrorrhagia. These figures, I firmly believe, are fallacious and due to a misapprehension of what we now know to be the characteristics of true inflammation of the endometrium to which the term "endometritis" should alone be applied. The subject has recently been very fully discussed by Adler and Hitschmann, and with the views set forward by these writers I cordially agree.

A thorough investigation of the cases classed clinically as "endometritis" showed that 61 of the patients were married, and of these 43 directly attributed the irregular hæmorrhages to the last labour or abortion at intervals varying from 3 months to 1 year. The irregularity, in fact, dated from the resumption of function. Examination of the curettings revealed the following facts: (*a*) 25 cases showed what in the past was designated "glandular endometritis"; (*b*) 9 cases showed all the characteristics of the so-called "interstitial endometritis" of Ruge's classification; (*c*) atrophic "endometritis" was present in 2; (*d*) plasma cells and marked leucocytic infiltration appeared in 7. In other words, 34 exhibited only evidence of those changes which we now know to be but physiological, and therefore could not be classed as "endometritis."

Endometritis of septic origin does not appear to produce uterine hæmorrhage. Thus, in a series of 15 cases where curettage was performed for discharge and pain, the endometrium was infiltrated with plasma cells and leucocytes. Hæmorrhage was absent. In one of these cases, where the discharge was very foul and the clinical diagnosis was "putrid endometritis," thrombosis of the vessels was present as shown in Fig. 13. Furthermore, every case where hæmorrhage accompanied a true "endometritis," as shown by the presence of plasma cells, the curettings invariably exhibited a combination of different phases of the menstrual cycle; in other words, the hæmorrhage in these cases was, in my opinion, not due to the endometritis, but rather to a functional defect in the ovarian hormone. Such is the case in Figs. 11 and 12, which represent different portions of the endometrium from the same uterus obtained at one curetting.

4. *Hypertrophy of the endometrium.*—It is unnecessary to dwell further upon the relation of hypertrophy of the endometrium to uterine hæmorrhage. In its diffuse form it occurs under the name of "glandular hypertrophy"; its localised variety is the common "adenomatous polypus." Hæmorrhage is usually profuse and appears to be due to excessive thrombolysis of the uterine clot.

Ovary.

5. *Ovarian cystomata.*—Reference to the preceding table shows that cystomata of the ovary rarely cause interference with the menstrual function. This is a matter for some surprise, since it might be expected that as the function is so much under the control of these organs wide variations would occur. It must, however, be remembered that the hormone is probably produced by the cells of the stroma, whilst cystomata are in many cases related to the Graafian follicles.

6. *Displacements of the ovary.*—Displacements of this organ as a general rule do not produce excessive uterine hæmorrhage. However, in some cases of extreme congestion of the organs associated with simple retroversion I have at times been tempted to attribute the excessive losses to this cause, since correction of the retroversion by pessary treatment without relief to the prolapsed ovary produced no amelioration in the severity of the uterine bleeding.

7. *Hypertrophy of the ovary.*—Reference has previously been made to this condition in the course of the lecture, and its close association with hypertrophy of the endometrium and profuse hæmorrhage defined. It is important to note that the hypertrophy affects the stroma rather than the Graafian follicles, and the close association of the condition with hypertrophy of the endometrium appears to afford clinical evidence that it is from the ovarian stroma that the specific hormone is derived.

Pelvic Inflammation.

8. Pelvic inflammation is not infrequently associated with excessive hæmorrhage from the uterus. Thus in 176 cases we find that 67, or 38 per cent., are accompanied by menorrhagia. In the figures quoted there appears to be little difference between inflammatory processes attacking the Fallopian tubes and those involving the ovaries. It might be thought that lesions affecting the ovaries would produce greater anomalies in the menstrual function. At the same time we must remember that it is only in the most extreme cases of inflammatory disease that the whole of both ovaries is disintegrated, and we know both from experimental and operative results that a very minute portion of ovarian tissue is sufficient to maintain the regularity of the menstrual function. Furthermore, the majority of inflammatory processes are insidious in their onset and afford ample time for ovarian function to be assumed by other elements in the endocrinous system if it be agreed that such transference of function takes place.

As regards the occurrence of excessive bleeding in pelvic inflammatory disease, I am more inclined to think that the hæmorrhage is the result of interference with the venous return rather than to any specific effect either upon endometrium or ovary, since it occurs not only in connexion with inflammatory lesions related to the sexual organs, but also in cases secondary to extra-genital inflammation, such as appendicitis. Furthermore, treatment applied either directly to the endometrium or ovary usually fails in such cases.

It is not my intention to discuss those factors which I have included under Group 3 in the incidence of pathological uterine hæmorrhage—viz., pelvic venous stasis. I have referred to this aspect of the subject on other occasions, and no useful purpose will be served by detailing facts already recorded.

PRINCIPLES OF TREATMENT.

I cannot conclude without a brief reference to the therapeutics of pathological hæmorrhage based upon the physiological and pathological principles to which I have referred.

Curettage.

In the first place, I may say a few words with reference to curettage. For many years the curette has held a high position in the treatment of excessive hæmorrhage in the uterus. When the immediate and remote results of this operation are considered, however, we find that although a certain proportion of patients are permanently cured, a considerable percentage exists where the benefit derived is only temporary; thus Buzze, quoted by Adler and Hitschmann, has published the after-histories of 500 cases curetted because of hæmorrhage attributed to "chronic endometritis." He found that only 10 per cent. were *permanently* cured. In considering the value of this operation we are led to the conclusion that cases fall under one of three groups: (*a*) Cases where cure is permanent; (*b*) cases where relief is temporary, hæmorrhage recurring after a greater or less interval; and (*c*) cases where no benefit accrues.

Group (*a*) includes cases where hæmorrhage is due to a localised cause, such as a mucous polypus. It also includes those patients who in the interval following temporary relief recover the physiological balance which I have already indicated as being essential for the control of periodical hæmorrhage.

Group (*b*): Hypertrophy of the endometrium falls under this heading, and the reason that relief is only temporary is partly because the primary defect is often not situated in the uterus. With the removal of the hypertrophic endometrium the bleeding ceases for a time. Within a few months, however, if the stimulant is still acting, hypertrophy again takes place and hæmorrhage recurs.

Group (*c*) includes those cases where curettage is performed for hæmorrhage due to errors in the functional power of the endometrium itself, more particularly hæmorrhages associated with puberty and the menopause. In such cases very little tissue is removed with the curette, and the hæmorrhage continues practically from the day of the operation.

What then *is* the value of curettage in the therapeutics of uterine hæmorrhage? I would say that its use is principally for diagnostic purposes. If the examination of the curetted endometrium is taken in conjunction with an analysis of the menstrual discharge, and care taken to correlate the appearances of the endometrium with the period of the sexual cycle, much valuable information may be gained as to the cause of a specific hæmorrhage. Curettage at the two extremes of sexual life is, in my opinion, a useless procedure except for diagnostic purposes. It is not possible to alter the character of the endometrium by any amount of curetting. This is proved by examination of repeated curettings from the same uterus, and it accounts for the fact that in glandular hyperplasia of the endometrium curettage is only of temporary benefit.

Indications for Treatment.

Treatment to be successful must be based upon a physiological and pathological basis. Thus, where hæmorrhage is due to the absence of thrombokinase, such as occurs in menorrhagia due to the atrophy of old age, attempts may be made to

replace the same. In the case of puberty natural cure usually takes place within a few months by development of the endometrium, and in the great majority of patients there is no necessity for local treatment. At the menopause, however, if hæmorrhage is very profuse or prolonged, the application of thrombokinase in the form of extract of endometrium or extract of testicle is useful in immediately controlling the same. Fibrin ferment directly applied to the endometrium is also of service in directly checking hæmorrhages of this nature. (Fibrin ferment, similar to that employed in my experiments, is supplied by Messrs. Parke, Davis, and Co. under the name of "coagulose.")

If bleeding is due to excessive thrombolysis, the result of hyperplasia of the endometrium, temporary relief may be obtained by curetting. If bleeding recurs I would suggest that partial oöphorectomy be performed. This procedure has answered admirably in those cases that have come under my notice where profuse losses are associated with high thrombolytic power and extreme hypertrophy of the endometrium. Where hæmorrhage appears to be the result of venous stasis appropriate means must be taken to relieve the same, either by purgation in the case of portal congestion or operation where the cause is severe and chronic inflammation.

In those cases where the uterus has lost its power of regulating the supply of blood to the endometrium, such as in fibrosis or arteriosclerosis, hysterectomy appears to be the safest and best method of treatment.

In conclusion, I have one duty more. It is to tender my most sincere thanks to my friend and colleague at the General Hospital, Birmingham, Professor Thomas Wilson, for the very valuable help he has afforded me throughout the whole of my investigations both as regards facts, material, and friendly criticism. I am also under the deepest obligation to Professor R. F. C. Leith and Professor E. Wace Carlier, of the University of Birmingham, in whose laboratories the majority of the experimental work for this lecture has been carried out. I have also to thank Dr. Gwynne Maitland and Dr. Cranston Walker for very valuable assistance in the physiological aspects of the subject, Dr. med. Esther Kadisch for help with the literature, and numerous other friends without whose loyal coöperation the work could not have been accomplished.

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SOME CAUSES OF FAILURE OF VACCINE THERAPY.[1]

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IN a paper read before the National Congress of Tuberculosis in London last year Dr. Hector Mackenzie stated that he had yet to see a case recover under vaccine treatment that would not have recovered if ordinary methods had been employed. Quite recently Dr. Batty Shaw has spoken in the same sense, and his views have received serious editorial consideration. Dr. T. J. Horder, too, while he has seen some cases do well, states that the large bulk of cases do not.

If these views are correct, all our hopes for the prevention and cure of many diseases, unpreventable and incurable by ordinary methods, receive a most decisive set back. It seems necessary, therefore, before going into the causes for failure, to prove that vaccine therapy can succeed at all where ordinary means had failed or were failing. I will refer first to six chronic cases, out of very many which have occurred in my practice, all of which had had prolonged ordinary treatment without success and which were completely cured by vaccine therapy. I will then refer to the successful treatment of some acute conditions by this means, the ordinary treatment of which is most unsatisfactory.

CASE 1.—Early in 1905 I saw a man, aged 40, who two years before had had his arm amputated near the shoulder for acute osteomyelitis of the humerus. He had had a prolonged stay in hospital and had been bedridden with a series of abscesses all over his body, especially in his right shoulder and lower extremities. I isolated a staphylococcus albus and gave him a series of injections beginning with 2000 million and ending with 30,000 million. He remained well for seven years, when, living in bad hygienic surroundings, he developed a periostitic abscess on his head. A few small injections completely cured him.

CASE 2.—A Canadian doctor, whom I saw early in 1905, had sycosis, marginal blepharitis, and inflammation of his eyebrows, and had tried the ordinary methods of North America and Europe with only occasional temporary relief. He was cured by half a dozen increasing doses of vaccine made from staphylococcus aureus isolated from his lesions.

CASE 3.—A girl, aged 16, seen in 1907, who had been three years confined to bed with tuberculous disease of her hip-joint. She had spent a long time in a county hospital and some time at Guy's Hospital, and had had the careful attention of a local practitioner. When I saw her she had several profusely discharging sinuses at the bottom of which dead bone could be felt. One dozen doses of new tuberculin, beginning with 1/10000 c.mm. and ending with 1 c.mm., completely healed up her sinuses. I saw her last October when she remained perfectly well.

CASE 4.—A doctor who, when I saw him in April, 1910, had been laid up for three years with a swollen knee, which had been diagnosed as tuberculous, and for which excision

[1] A paper read before the Medical Section of the Royal Academy of Medicine in Ireland.

had been recommended. He thought himself it was rheumatic, and tried all sorts of remedies, including sour milk and ionic medication. I agreed with his diagnosis, and found he had pyorrhœa alveolaris and post-nasal catarrh from which I isolated a streptococcus. Six weeks after the first inoculation he could walk two or three miles. The doses were increased from 50 to 4000 million. He remains perfectly well and is in active practice.

CASE 5.—A bad case of pyorrhœa alveolaris sent to me in 1910 by his dentist, who had given him prolonged and meticulous local treatment. The microbes isolated were M. catarrhalis chiefly, with some streptococci. Seven doses of the mixed vaccine, beginning with 25 million and ending with 750 million, completely cured him, and his dentist informs me that he remains perfectly well.

CASE 6.—Another bad case of pyorrhœa alveolaris sent to me by the same dentist, from which I isolated streptococci in pure culture. He was a most obstinate case. I was not satisfied with the condition of his gums until I attained 8000 million. I gave him two further doses—viz., 9000 million and 10,000 million. He has remained well now for a year and has almost completely lost the severe fibrositis he had suffered from for years.

The acute conditions I wish to refer to are puerperal fever and typhoid fever. As regards puerperal fever, I need only refer you to the excellent results obtained by Dr. R. J. Rowlette, and published in the Rotunda Hospital reports for the last few years. Can any ordinary method bring about the crisis of the temperature in the way this has been done in many of these cases? Equally good results have occurred in my own practice.

Then in the case of typhoid fever. I can refer to two cases of paratyphoid B fever, both of which were in high fever and delirious. Both were receiving the most skilled attention from two physicians, who gave a very grave prognosis, and in both the temperature fell to normal after one small injection of mixed paratyphoid and bacillus coli vaccine made from their fæces.

Three cases of typhoid fever occurred in a brother and two sisters. The brother I had, some time before, apparently cured of somewhat acute tuberculosis of the upper lobes of both lungs. He had been three weeks ill. On examination his lungs appeared sound. His evening temperature reached 102° F. He was at times delirious. His abdomen was distended and he was deeply jaundiced. Two injections of autogenous mixed vaccine (2½ million), given at intervals of two days, made from fæcal cultures, at once brought his temperature down to normal. He had three in all and made an uninterrupted recovery. In the case of the sisters the disease was more recent; in both two small injections of autogenous mixed vaccine brought their temperature to normal. The case of the second sister was interesting, for I used at first the first sister's vaccine, of which she had three increasing doses—viz., 2½, 5, and 7½ million—with no result. I then made an autogenous vaccine, after the second dose of which (5 million) the temperature fell to normal and remained down.

Were these rapid improvements due to the vaccine or were they just coincidences? If the latter is the case, then I must have extraordinary luck, for they are the only cases of typhoid fever I have treated in this way.

I think that most cases of failure in this treatment are due to want of proper application of the method to the patient. There are several potential causes of failure to be taken into consideration: (1) Failure of patient to react; (2) failure to diagnose the infecting microbes; (3) incomplete immunisation; and (4) failure to give the doses at proper intervals.

1. It is of course essential, in order that vaccine therapy should be successful, that the patient's tissues should be capable of responding to a further stimulus. It is remarkable, and would appear *a priori* impossible, that in such acute generalised infections as typhoid fever, where the micro-organisms are circulating in the blood, the patient's tissues would be capable of reacting, and yet such is the case. The same is true of other acute diseases, such as pneumonia and puerperal septicæmia. I have suggested that, for instance, in typhoid fever, where the microbes are in the circulation, many of the tissues are protected to a large extent from the microbes and their poisons by the endothelial cells of the capillaries, the efficiency of which as phagocytes is well known; and so, when the vaccine is put into the subcutaneous tissue, one gets behind them into tissues capable of further response. This resistance of the endothelial cells is destroyed in overwhelming infections with the production of hæmorrhages. The tissues are overwhelmed with poison, no antibody-producing tissue is left, and the patient dies.

One finds that old people react badly and so the initial dose must generally be smaller, and one cannot generally increase the dose to the extent that is generally possible in younger people. Diabetics I have also found are extremely sensitive, and the doses given must be small. Acidosis, chronic nephritis, and cachexia are conditions in which a poor response may be expected.

2. Taking for granted that the patient is capable of response, an accurate diagnosis of the infecting micro-organism, or micro-organisms, is essential. Failure in this respect is one of the most potent causes of want of success in vaccine therapy. And here comes in the question of stock vaccines. Certain stock vaccines, such as staphylococcus vaccine and gonococcus vaccine, can be used with fair prospect of success provided a suitable series of doses can be obtained. None of the big firms supplying vaccines supply such suitable series. Again, although boils and carbuncles are practically always staphylococcal in origin, I came across a case recently covered with varying sized pustules, and from the pustules and his blood I isolated a different microbe. Again, acute urethritis is caused by many other microbes besides the gonococcus, so that giving gonococcus vaccine in such a case without bacteriological examination is quite unjustifiable. It is always better to use autogenous vaccines. They also give one a certainty of using vaccines of appropriate toxicity.

I am at present treating a case of advanced rheumatism. The patient was given a large number of injections of stock streptococcus vaccine without any reactions and without any improvement. I made cultures from his gums, which were inflamed, and found this was due to a small Gram-negative bacillus. He is steadily improving. The failure of stock and the success of autogenous vaccine is well illustrated by the third case of typhoid quoted above.

Even with ordinary bacteriological examination one can go wrong. In a case of pyorrhœa alveolaris from whose gums I had isolated what I find is far the most common combination in this condition—viz., micrococcus catarrhalis and streptococci—and although I had pushed the mixed vaccine

to a high dose, there was no improvement. The lesions in this case were due to the bacillus fusiformis, which is exceedingly difficult to grow, and the patient is now improving steadily with a mixed vaccine containing these microbes.

I believe it is the usual practice, if, for instance, from sputum a mixture of micro-organisms grow, to subculture these separately, and use one or other of these either after testing it against the patient's serum, or choosing the most probable microbe without testing; or if the opsonic index or other test indicates that two or more are pathogenic, to mix them in suitable proportions, or give them consecutively. My practice is as follows. Taking sputum again as an example, if from the central part of a carefully taken and carefully washed piece of sputum a mixture of microbes grows, I think it reasonable to suppose that more than one microbe is taking part in the process; one, of course, is probably the initiator of the process, but if there is present another micro-organism, which has been leading a saprophytic existence or causing a lesion that is not producing symptoms, then it is unreasonable to suppose that it will not become pathogenic or more pathogenic when the resistance of the tissues is lowered. Anyhow, if a microbe which grows is not pathogenic it will do no harm in the vaccine. I consider it is far better practice then to make the vaccine off the original plate, for the toxicity of the microbes is not lowered by subculture, and one is far more likely to get them in suitable proportion in the vaccine. I only subculture for diagnostic purposes.

Pyorrhœa alveolaris is commonly a mixed infection, the most common combination being microbes belonging to the micrococcus catarrhalis group and streptococci. Acne is always caused by acne bacilli and staphylococci. Nearly all the inflammations of the gastro-intestinal tract are mixed infections—e.g., as in typhoid fever. Inflammations of the respiratory tract very frequently are, for example, tuberculosis of the lungs. There is another combination that is very important, and that is infection in one set of tissues lowering the resistance of another set, and so predisposing to microbial action in them. A good instance of this is staphylococcal inflammation of the skin, accompanied by chronic inflammation of the gastro-intestinal tract. If inoculation of staphylococci alone is given frequently only temporary or a very little improvement is produced. The causes of the intestinal inflammation must be diagnosed and a mixed vaccine used.

3. *Dosage.*—Wright and Douglas worked out their system of dosage by the opsonic index, their object being to find out the dose which kept the opsonic index at its highest point. They found out that a comparatively small dose in any given case would produce this result, and a repetition of this dose or a small variation of it was given at suitable intervals—that is, when the opsonic index began to fall.

Now the amount of specific antibodies produced in the blood, when the opsonic index is brought to its highest point, is small, and frequently too small to produce the cure of the patient. Increasing the dose of vaccine increases the amount of specific antibodies, but the opsonic index does not give a measure of them, unless a dilution method is used, and yet the whole system of dosage has been worked out on this index and has led to hard-and-fast rules of dosage, when, as a matter of fact, the dosage in any given case must be worked out on its merits. There is no hard-and-fast upper limit of dosage for any given patient infected with any given micro-organism. Let me give an example. A patient who had an abscess behind her knee and had had sinuses discharging for four years had been given a few doses of staphylococcus vaccine with no results. Steadily increasing doses to 6000 million quite cured her. I believe that 2000 million staphylococcal vaccine or less is considered by many the upper limit of dosage for this microbe. In the case of chronic staphylococcal septicæmia mentioned above a dose of 30,000 million was attained before apparent cure was attained. In the case (No. 6) of streptococcal pyorrhœa a dose of 8000 million had to be attained before the patient was apparently cured. I have a very advanced case of pyorrhœa alveolaris at present, due to M. catarrhalis and streptococci, who is not yet well, but nearly so after 8000 million mixed vaccine. I am steadily increasing the dose. Of course, such large doses have not to be attained in every case.

For instance, in a recent staphylococcal infection, one may apparently cure the patient with two doses of 100 million and 200 million. One would give 400 million and 800 million after to prevent relapse. As a rule, the more chronic the case the larger the dose that will have to be attained. I begin with a small dose, sometimes needlessly small, and steadily increase it with due regard to reactions until the patient is apparently well, after which one or two larger doses are given to leave a margin of safety. In this way one adapts the treatment to the patient and not the patient to the treatment.

I would like to repeat, and emphasise, that you cannot tell in any given case the size of the dose that must be attained before success is achieved.

4. The fourth, and last, cause of failure I will mention is the giving of the vaccine at fixed intervals without any regard to any reaction the patient may have had. It is quite common to find that vaccine therapy has been abandoned because the patient has been made worse, and to find that succeeding doses have been given before the effect of the preceding one has passed off. It is much better to give the vaccine at too long an interval rather than at too short a one. If after an injection there is neither local nor general reaction, one may often give the next dose after 48 hours. If there is a slight local or general reaction one leaves a longer interval. For myself, I generally leave three clear days after all signs of reaction have passed before giving the next dose, and if the reaction has been a severe one the previous dose is repeated after this interval. As the doses get larger the intervals get longer. One often leaves 14 or more days between large doses of staphylococcal vaccine.

I may mention here a practice I have found very successful in controlling reactions—it is the exhibition of iodine. I generally use Szendeffy's mixture of iodine, menthol, and radium, which is very easily prepared. The patient is told to come next day after an injection, and if there is severe malaise or markedly increased focal symptoms 1 c.c. of this mixture is given. Iodine has been proved to be an antitoxin of the best kind, since it destroys the toxic, but not the combining, power of the toxin molecule, and so does not interfere with its antigenic properties.

Dublin.

THE OPERATIVE TREATMENT OF PULMONARY TUBERCULOSIS.[1]

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IT is not my intention to discuss those earlier attempts at the surgical treatment of pulmonary tuberculosis which have now mostly been given up—e.g., the drainage of cavities—but to call attention rather to the various methods of surgical intervention which are being essayed at the present day with a considerable measure of success.

During the last decade the advances which have been made in dealing with this disease have been very considerable, and the surgery of pulmonary tuberculosis has entered upon an entirely new phase. This change has come about as a result of the recognition that tubercle of the lung differs in no essential respect from tubercle of any other part of the body, and that provided, therefore, it is taken in hand sufficiently early, and is treated by absolute rest, the disease tends to heal rather than progress. The great difference lies in the fact that when tubercle attacks a joint, absolute rest of the part is possible without surgical intervention, but when tubercle attacks a lung absolute rest cannot be obtained except by the aid of certain special procedures, or as a result of an accidental complication of the disease itself. The striking effect that may be obtained in the lowering of a persistent temperature in a phthisical patient, if he is kept lying motionless on his back for a period of days, is of course well known; but even during this time the lung is in constant motion during each act of respiration, and the immobilisation of the diseased organ is necessarily incomplete. Even more striking may be the effect when a spontaneous pneumothorax has occurred, provided, of course, the patient survives the complication. In such a case the immobilisation is absolute, but often of a temporary duration only.

These facts are most significant, and indicate very clearly that when movement is diminished or entirely abolished the progress of the disease is arrested, and the lung, provided no cavities exist, is capable, not only of preventing the extension of the organisms, but even of repairing the damage done. However, as soon as cavities have formed, we find that in this respect also the lung is placed in a peculiarly disadvantageous position. An abscess is incapable of healing unless it can be freely drained and made to granulate from the bottom, or the walls can be brought into apposition. In the lung free drainage of a cavity, in the surgical sense, is rarely if ever present, while the approximation of the walls—possible to a certain degree only as the result of cicatrisation around the cavity and the narrowing of the whole of that side of the chest by displacement of the mediastinum and of the diaphragm, together with the dropping and approximation of the ribs to each other—is rarely sufficient to be effectual. It has taken a long time for these facts to be appreciated and for the ideas suggested to be materialised into the modern form of treatment.

Briefly put, the surgical treatment of pulmonary tuberculosis is directed almost entirely towards the immobilisation of the diseased lung by producing solidification of the whole or part of the organ. Solidification may be effected by establishing: 1. A temporary collapse of the lung—nitrogen displacement (pneumothorax). 2. A permanent consolidation—(*a*) of the whole lung—rib resection, rib mobilisation; (*b*) of part of the lung—rib resection, extrapleural displacement, division of the phrenic nerve.[2] These various methods must now be dealt with.

Nitrogen Displacement (Pneumothorax).

Of the various operative procedures nitrogen displacement is by far the simplest, and differs from all others in that the solidification of the lung, though of a temporary nature only, can be maintained for as many months or years as it may be thought desirable; further, at any time the lung can be allowed to re-expand for the purpose of determining the course of the disease. Whenever, therefore, solidification of the whole of one lung is required for the treatment of pulmonary tuberculosis it should be produced, when possible, by nitrogen displacement.

The choice of case.—Speaking from the standpoint of a surgeon, any case of unilateral or even of bilateral phthisis which has not improved as the result of, or has progressed despite of, a course of medical treatment of three months' duration should be treated by nitrogen displacement on the one side, provided there is sufficient healthy lung tissue (about two-thirds) on the other side to carry on the functions of respiration.

There is one important question which must be decided before treating a patient both of whose lungs are partially affected. Which side shall be treated by nitrogen displacement? Two groups of cases must be considered. The one group in which the disease is primary on one side and the involvement on the other side is due to a spread of infection. In such a case the former is the side on which to do the nitrogen displacement, and one knows that in all probability the improvement of the primary lesion will materially benefit the secondary invasion. The second group contains those cases with bilateral affection in which there is no evidence pointing to a primary infection of the one side and a secondary involvement of the other. If one of the lungs only shows sufficient healthy lung tissue to carry on the functions of respiration the nitrogen displacement must be done on the other side, but if neither of the lungs is extensively diseased, then the solidification must be produced on that side which shows the most active lesion (as recognised in a radiogram by the fluffy outlines of the shadows) or which contains a cavity.

Yet another type of case in which the nitrogen displacement is of the utmost value needs mention. I refer to those cases in which hæmoptysis is profuse or repeated. The displacement here is not only of value as a method of treating the tuberculous disease, but it may even be the means of saving the patient's life.

Technique.—The displacement of the lung by nitrogen, when no adhesions are present, is a very simple matter, but when the two layers of the pleura are adherent the operation becomes one of very great difficulty and may be wholly impossible. In all cases, however, there are two very real

[1] Being part of a paper read before the Tuberculosis Society on Jan. 17th, 1914.

[2] There is yet another method of producing permanent consolidation—by ligature of a branch of the pulmonary artery. This, however, is not used in the treatment of pulmonary tuberculosis. The method is described in my article, Recent Advances of the Surgery of the Lung and Pleura, British Journal of Surgery, vol. i., No. 2.

dangers which must be guarded against. These two dangers are pleural reflex and gas embolus, both of which may end fatally. I am, however, quite certain that if precautions are always taken neither of these complications need arise.

The pleural reflex, which can be described as "acute shock," may be produced by the needle puncturing the parietal pleura or by the too sudden and the too violent stretching of intrapleural adhesions. To avoid this danger the track of the needle (including the parietal pleura) should be anæsthetised with novocaine.[3] Immediately before the first injection of nitrogen (as the patients are usually somewhat nervous until they realise the painlessness of the operation), a hypodermic injection of ¼ gr. of morphia should be given; this need be repeated before the subsequent injections only if the patient is an extremely nervous subject. During the injection of nitrogen the intrapleural tension should never be allowed to rise above a positive pressure equal to 10 mm. of mercury.

A gas embolus is due to the needle entering the lung and the nitrogen being expelled into a vein, but it may also be caused by the production of a high intrapleural positive pressure tearing the lung and exposing an open vessel to the compressed gas. The following precautions are necessary. No gas must be introduced unless the manometer connected with the needle shows regular oscillations coinciding with the respiration of the patient. The first 100 c.c. of gas should be oxygen; if oxygen escapes into the blood stream the affinity of the tissues for this gas is so great that the damage done is probably considerably less than that caused by the same amount of nitrogen. The intrapleural tension must not be allowed to rise above a positive pressure equal to 10 mm. of mercury.

The routine method for the treatment of a patient by nitrogen displacement of the lung is briefly as follows. The patient should be kept under observation in bed for one week so that the temperature, the amount of sputum, and the weight may be recorded. On the day of the first injection ¼ gr. of morphia is given 15 minutes before the operation, the skin in the region of the puncture is painted over with iodine, and the track of the needle is anæsthetised with a 2 per cent. solution of novocaine. The most satisfactory site for the first attempt is in the mid-axillary line through the sixth intercostal space, directly in front of the anterior edge of the latissimus dorsi muscle. The skin is punctured with a double-edged tenotome, and the needle, which has been connected up with the nitrogen apparatus and tested to know that all is in working order, is passed through the chest wall into the pleural cavity. As soon as the needle enters this space the water manometer will show the presence of a negative pressure and undulations corresponding with the respirations. Great care must be taken that the needle is not pushed in any further nor withdrawn as the gas flows. 100 c.c. of oxygen are now allowed slowly to run into the pleural cavity, but the movements of the manometer must be watched continuously, and at the slightest variation or cessation of the movements the gas must be cut off and not turned on again until the operator is certain from the character of the oscillations that the opening of the needle is still in its proper place. After the oxygen has been safely introduced, 100 c.c. of nitrogen are run in. The intrapleural tension is noted, the needle withdrawn, and the small wound covered with a piece of zinc oxide plaster.

If there has been no reaction the second injection can be made on the second day, when 350 c.c. of nitrogen are run in. The subsequent injections are made at intervals of two days, 500 c.c. being introduced on the third, and 750 c.c. on each of the following occasions, provided that the patient suffers no inconvenience and has no rise of temperature. When the primary object of the displacement is to arrest a severe hæmorrhage, from 500 to 750 c.c. of nitrogen must be run in on the first occasion, and if the bleeding continues from 750 to 1000 c.c. on each of the succeeding days. The displacement may be regarded as complete when the inspiratory pressure is + 1 (mm.Hg). The average capacity of the pleural cavity of an adult is 3000 c.c. If after the first or subsequent injections there has been a definite increase in fever, no further injection must be given until the temperature has returned to its former level and has remained there for at least two days.

If adhesions are present and the intrapleural pressure rises rapidly the injection must be done as slowly as possible, and whenever the pressure rises above 10 mm. of mercury the gas must be cut off and no more run in till the pressure has again fallen. When no pleural cavity can be found at the first puncture an attempt must be made at other levels, particularly over those portions of the lung which are known to be least diseased; but before each puncture is made the track of the needle must be anæsthetised.

In a straightforward case the pleural cavity should be "refilled" every six weeks. One injection of about 750 c.c. of nitrogen is usually sufficient, and the patient can return to work the next day. In about 30 per cent. of all cases a slight pleural effusion develops as the result of the treatment. There is no harm in this unless it should occur after the lung is completely displaced, but in such a case the increase in pressure will produce embarrassment in respiration, which is, however, quickly relieved by withdrawing some of the nitrogen or the fluid.

The immediate results of this treatment are most gratifying; the fever disappears, the cough and sputum diminish, and in favourable unilateral cases may be reduced to even one cough and one spit first thing in the morning. Hæmorrhage, when present, is controlled and the dangers of recurrent hæmoptysis are abolished. The effect of these improvements is rapidly shown by the general amelioration of the patient's condition—increase in appetite, gain in weight, and the night's rest undisturbed. In many cases after a few weeks of convalescence the patient is able to resume light work.

At the end of a year the lung should be allowed to re-expand, a skiagram taken, and the gross and detailed changes in the lung noted. The most striking feature observed, when such a skiagram is compared with the original one taken before treatment began, is the disappearance of the fluffy outline from the shadows, the general sharply defined fibrosis that is taking place in the diseased areas and the contraction of the cavities when such are present, together with the disappearance of the surrounding areas of pneumonic change. As I have already stated, improvement will be noticed, not only on the side which has been solidified, but on the opposite side also. As a rule it is necessary,

[3] The technique of this procedure is described in my paper, A Note upon the Complete Removal of Pleural Effusions, THE LANCET, Dec. 28th, 1912

or at any rate advisable, that the lung should be resolidified for a further period of 6 to 12 months. If at the end of that time the disease in the lung is reduced to a quiescent state there is no objection to that lung being allowed to resume its functions and the opposite lung solidified if active disease should still be present in that organ.

This form of treatment has not been in use for sufficient length of time to enable me to dogmatise on the permanency of the relief obtained, but from the satisfactory nature of the improvements during and immediately after treatment there is no reason to suppose that the disease is likely to progress again after the treatment is stopped.

Owing to the presence of adhesions a *partial displacement of the lung* only is possible in some cases. The solidification of the lung may be too slight to produce any material benefit, but on the other hand it may be sufficient to produce a marked improvement in the patient's condition, and when such is the case treatment should be continued. It will be necessary, however, to replace the absorbed nitrogen at more frequent intervals, since if the lung is allowed to re-expand it may be impossible again to displace it.

Permanent Consolidation.

Unfortunately, in a considerable number of cases (about 30 per cent.), temporary collapse is impossible owing to the firm adherence of the parietal and visceral pleura. Some other method must then be adopted to bring about solidification of the lung, but whichever method is decided on the solidification produced thereby will be permanent. It is necessary, therefore, to be far more rigid in the selection of the cases, as permanent consolidation must not be produced on the one side unless the other lung is healthy or shows only slight evidences of peribronchial infiltration.

When the disease involves the whole of one lung one of two operations is possible: (1) Multiple rib resection; and (2) rib mobilisation (Wilms's Pfeilerresektion). In my opinion the latter of these two operations is preferable to the former. Even when done in several stages the decostalisation of one side of the chest wall is a very considerable undertaking, especially in so far as the upper ribs are concerned; it is liable seriously to shock the patient, and the mortality of the operation is high. The operation for rib mobilisation, as recommended by Wilms, consists in the removal through vertical incisions of some 2 to 3 cm. of the posterior parts of the first seven to nine ribs, and anteriorly portions 2 to 3 cm. in length of the first five to seven cartilages. The posterior and anterior resections are done in two stages at an interval of ten days to a month, the time that is allowed to elapse depending on the amount of reaction produced by the first operation. This operation is quite valueless unless portions of the first rib, back and front, are removed; this is the difficult part of the operation. Three changes occur in the central mobilised portions of the ribs; they become approximated to the middle line; they drop down so that the divided ends are about one or one and a half vertebra lower than their previous level; and at the same time they tilt downwards and inwards (bucket handle movement). The result is a very striking diminution in the size of the chest on that side, which can be very clearly seen in the skiagram. The collapse of the lung produced by the falling in of the chest wall is sufficient to effect obliteration of cavities as large as walnuts. Personally I think that it is always necessary, in order to obtain satisfactory results, to remove portions of at least nine ribs posteriorly, and anteriorly portions of the costal cartilages down to, and including, the costal margin, sufficient of the costal margin being removed to prevent overlapping of the divided ends. The operation is not a severe one. One only of the six patients on whom I have tried this operation (a boy aged 11) suffered from considerable shock after the first stage, but not after the second stage. Although the collapse of the chest wall, and therefore of the lung, is considerable, it is surprising how little deformity is noticeable. The tendency, moreover, to the production of a secondary curvature of the spine is not great and is easily controlled.

The results which may be expected from the permanent consolidation of the lung are similar to those already discussed in connexion with temporary collapse, with the exception, however, that in the former case collapse of the lung is not so complete as when produced by the nitrogen displacement, and therefore the immediate effects cannot be so striking or so rapid.

In the consideration of phthisis limited to the upper lobe of one lung two additional operations have to be mentioned. Sauerbruch has called attention to the fact that when an operation, such as rib resection, is done over a diseased upper lobe, there is considerable risk of the infection spreading, as the result of the inspiration of the pus, into the lower lobes. He has recommended, and practised with success, the division of the phrenic nerve in the neck on the same side, as a preliminary to the decostalisation. The effect of dividing the phrenic nerve is naturally to paralyse the diaphragm, unless, as happened in a case when I did the operation, the phrenic receives a communication, below the point of section, from the nerve to the subclavius muscle. When the diaphragm is paralysed it comes to rest in the position of extreme expiration, the air entry into the lower lobe is materially diminished, and a degree of fibrosis develops in that part of the lung.

Tuffier has devised an original procedure for collapsing the upper lobe and speaks very highly of the results obtained thereby. He exposes the parietal pleura in the upper part of the chest and frees it from the chest wall, displacing the pleura and apex of the lung downwards and inwards. The cavity which is thus produced between the outer surface of the parietal pleura and the inner surface of the chest wall is filled with a mass of fat, preferably a lipoma, and the wound is closed. The transplanted fat prevents the re-expansion of the displaced lung, and radiograms which have been taken after an interval of two years show that this displacement is maintained.

Freund is strongly of opinion that apical tuberculosis is due to rigidity of the upper thoracic opening, and recommends that the first costal cartilage be divided when the disease is limited to the apex. As, however, my own investigations[4] do not corroborate this association of an apical lesion with a rigid upper opening I cannot recommend this method of treatment.

These various operative procedures which I have described are all of comparatively recent date, but the results that have so far been obtained are sufficiently encouraging to justify the continued practice of them in suitable cases. It is important to

[4] A Consideration of the Influence of the First Costal Cartilage on Apical Tuberculosis, British Journal of Surgery, vol. i., No. 1, 1913.

remember, however, that the type of case which is the most suitable is not the patient with the long-standing chronic lesion involving the greater part of one lung and a considerable part of the other, but the patient who is suffering from an acute lesion confined mainly to one lobe or even one lung and which does not rapidly respond and definitely improve under medical treatment.

SOME POINTS IN THE DIAGNOSIS OF PULMONARY TUBERCULOSIS BY THE X RAYS.[1]

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IN the X ray examination of the chest for pulmonary tuberculosis the necessary observations fall into two groups: direct observations of the lungs and subsidiary observations. Taking the latter first, two points have been noted almost since the beginning of X ray diagnosis—viz., the movements of the diaphragm and the size and positions of the heart. With regard to the diaphragm, deficient movement on one or both sides is admittedly a suggestive sign; it should always be noted, but care must be taken to avoid fallacies. Taken by itself deficient movement is no sign of disease of the lung; it may be due to an accidental cause—old basal pleurisy or paresis of the diaphragm if unilateral, while if bilateral it may be merely an individual peculiarity; many persons are able at will to breathe either with or without moving the diaphragm. A big firm abdomen may impede the movements of the diaphragm, rendering respiration purely thoracic.

With regard to the *heart*, for many years it has been held that in phthisis the heart is narrow and is placed vertically. The fact is that this type of heart occurs only in young adult phthisical subjects; it is not seen in children or in elderly persons, and not in advanced stages of the disease, for then the heart is dilated. The explanation of the narrow, vertical heart is simple: it is the heart of feeble, non-muscular young men and girls, who have grown rapidly out of childhood. The mass of muscle being small, the left heart has not much work to do, consequently it does not attain the usual size. These feeble subjects are very apt to be attacked by tuberculosis; then the muscles waste, and the left ventricle, having less work than ever, becomes smaller still, and the heart becomes almost a symmetrical organ. The youths of this type who escape tuberculous infection grow more robust as the years pass, and the left heart grows stronger and becomes more prominent in the left chest.

Coming now to the direct evidences of tuberculous disease in the lungs, there is a sign usually quoted as the earliest evidence of the disease; this is a failure of the lung to "light up" on inspiration at one apex. In conjunction with deficient movement of the diaphragm this sign is said to be very suggestive (some say it is actually diagnostic) of a commencing lesion at that apex. Certainly this conjunction is worth noting when it occurs, but in my experience it is very rare, and a "failure of an apex to light up" is very difficult to make out with certainty; there are endless fallacies, due to the position of the X ray tube, the thickness of the pectoral muscles of the patient, the "lie" of the ribs and clavicle, &c., and at best it is almost impossible to reproduce this "failure" on a photographic plate with any certainty. I am quite sure that we should diagnose pulmonary tuberculosis in a large number of healthy subjects if we were to rely on this sign. In my experience the only trustworthy sign of tuberculous disease in the lungs is *mottling*. This brings me to an important section of the subject.

The rational diagnosis of early pulmonary tuberculosis has been kept back many years by the teaching, founded on stethoscope observation, that the disease commences at the apex. X ray observations have made the fact increasingly obvious that this is not the case; it is quite rare to find tuberculous mottling limited to an apex, and when there is apical mottling there is nearly always mottling in the lung between the root and the apex, and also mottling disposed radially from the root along the air tubes toward the periphery.

To understand the mode of infection of the lungs it is necessary to study the X ray appearances of the healthy lungs; I took up this study three years ago and published my results in two papers.[2] The work may be summed up as follows. All healthy lungs show certain blotches at the roots and linear shadows radiating from the roots. By direct dissection of post-mortem specimens of healthy lungs under the fluorescent screen it may easily be shown that the blotches consist of enlarged lymphatic glands, usually containing calcareous deposit, while the linear shadows are due to fibrous tissue surrounding the cartilages of the air tubes. These changes are the end-results of the invasion of tubercle bacilli. In some cases earlier stages were shown in sections near the roots of these "healthy" lungs. The air tubes were full of catarrhal cells (epithelioid plates), and there were collections of lymphocytes around the cartilages. These specimens were indistinguishable from sections showing the most chronic forms of pulmonary tuberculosis. They were, in fact, sections of this disease, though the patients had no signs or symptoms of it, and probably would never have shown signs had they lived. Thus it appears that all of us have to deal with tubercle bacilli, and show changes due to our victorious fight.

The further study showed the usual manner in which the invasion takes place in cases of progressing tuberculous disease of the lungs. Many continental writers have lately drawn attention to the enlarged glands at the roots in cases of early pulmonary tuberculosis, and have come to the conclusion that these glands are the starting-point of the disease. This view seems to me illogical. Take the parallel case of a tuberculous finger with a mass of tuberculous glands in the axilla; nobody would argue that the disease had spread from the glands to the finger. The lymphatic glands at the roots of the lungs are the filters for invading microbes just as in other parts of the body; the glandular infection is secondary. True, these glands may break down and so become centres of infection, but such an occurrence is accidental and has no relation to the usual course of events in phthisis; as an early accident it occurs most often in children.

What, then, is the usual mode of invasion of the lungs? The first change is a catarrh of the large air tubes; the lumen of the tubes fills with epithelioid cells. The catarrh may extend to the smaller tubes, and there may be sputum in which a few tubercle bacilli may be found by studious search.

[1] A lecture delivered at the Royal Hospital for Diseases of the Chest on March 6th.

[2] Peribronchial Phthisis, Practitioner, February, 1912, and Brit. Med. Jour., August 31st, 1912.

Up to this stage there are no X ray changes in the lungs; the disease is practically a bronchitis. The next stage, however, is the most important of all; tubercle bacilli (accompanied by other microbes, as a rule) pass through the walls of the air tubes, and lead to the appearance of groups of leucocytes in the connective tissue surrounding the bronchial cartilages. This peribronchial infiltration is readily visible with the X rays; it gives rise to the fine mottling which is characteristic of early tuberculous disease of the lungs. The distribution of this mottling is always a radial one from the root, though from the first the mottling may radiate out to the periphery of the lung and up to the level of the clavicle. The distinctive feature of the mottling is its peribronchial arrangement along the branching system of air tubes. While this mottling is appearing the glands at the root are fulfilling their normal function; the root shadows increase in size. This condition I have named "peribronchial phthisis"; undoubtedly it is the usual mode of onset of pulmonary tuberculosis. Under suitable conditions a cure may occur, the leucocytes disappearing, and their place taken by new fibrous tissue. On X ray examination there would then be no mottling, but an increase in the thickness of the radiating lines around the air tubes. In unfavourable cases the leucocytic invasion of the tissues goes on, the individual "mottles" coalesce to form blotches, the disease reaches the apex (by way of the air tubes), and soon gets a firm hold in this, the most vulnerable region of the lungs. The physician, relying on his stethoscope to inform him as to the extent of the disease, can detect no signs (except perhaps those due to bronchial catarrh) until the infiltration is approaching the apex; early peribronchial phthisis gives no physical signs of its presence. By this time the disease is well advanced, and the most favourable early stages have slipped by.

There is no need to repeat the evidence and arguments of my former papers on this subject; I have only to say that recent experience has fully confirmed them, and has, in my opinion, placed beyond doubt the fact that the usual mode of onset of pulmonary tuberculosis is that which occurs in peribronchial phthisis. The cases in which the mottling is confined to one or both apices are rare, and even such cases can be shown to have arisen in the same way, the intermediate portions of lung having healed, while the more vulnerable apex has succumbed. The continuity of the process from root to apex can always be demonstrated.

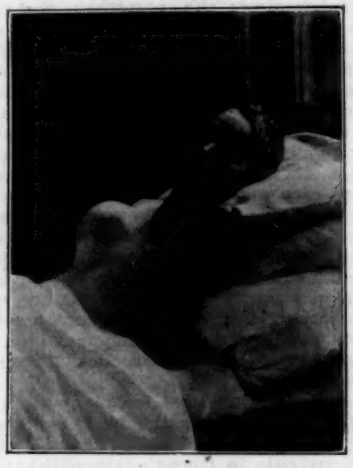
Upper Wimpole-street, W.

A CASE OF THORACIC ANEURYSM OF UNUSUAL SIZE.

BY GEORGE COOPER, B.A. R.U.I., M.D. BELF.,
LATE RESIDENT MEDICAL OFFICER, GENERAL INFIRMARY, WORCESTER.

THE following notes of a case of thoracic aneurysm, admitted to the Worcester General Infirmary on Jan. 8th, 1913, may prove of interest on account of the unusual size of the tumour and of the fact that the patient, aged 60 years, continued at his usual occupation until a few days before admission, although the swelling even then was of the size seen in the accompanying illustration, which was taken shortly after his being admitted to the infirmary.

The history of the onset of the illness presented no unusual features. Towards the end of March, 1912, the patient experienced at first a tingling pain in the chest and back, extending to the right arm. The pain, at first intermittent, soon became continuous, and in the course of a few weeks a hacking cough and a certain amount of dyspnœa added to his discomfort. About a month after the onset of these symptoms he noticed a small pulsating swelling in the second right intercostal space. Within a few weeks it had grown to the size of an orange, and it continued to increase steadily in size until at the end of nine months it had attained the enormous dimensions seen in the illustration. The increasing pain, cough, and dyspnœa kept pace with the growth of the tumour, but in spite of the distress he must have endured, the patient, as already stated, had remained at work until a few days before admission to the infirmary. There was no history or evidence of syphilis.



On examination the man was found to be very cachectic and considerably wasted. Dyspnœa was marked, and the slightest movement caused him intense pain. The pulse was 96, regular, and synchronous in both radials. The blood pressure taken on the right arm was 104 and 108 on the left arm. The right pupil was slightly dilated and reacted somewhat sluggishly to light and accommodation. The tracheal tug could only be faintly elicited. The voice was husky, the right vocal cord being paralysed, and the characteristic brassy cough was present. The right arm was somewhat œdematous, but the right side of the face and neck were only slightly affected. A huge swelling, tense and pulsating and dull on percussion, protruded from the right side of the chest wall in front. It was globular in shape and had the following measurements: 22¼ inches round the base, 9 inches from the upper pole of the tumour to the lower pole across the most prominent part, and 11½ inches measured right to left across the tumour. The heart appeared to be of normal size, and the apex beat could be made out in the fifth left intercostal space 1½ inches inside the nipple line. The pulsations of the tumour were expansile, somewhat forcible in character, and synchronous with the heart beat. Auscultation of the heart revealed a soft systolic murmur at the apex, but otherwise the heart sounds were normal. Over the tumour the heart sounds were well conducted, but the absence of a systolic bruit and "ringing" second sound were noteworthy features. The breath sounds were almost completely lost over the entire right side of

the chest and there was marked dulness on percussion. As there were several patches of ecchymosis on the aneurysm, and the skin appeared to have reached the limits of stretching, it was feared the aneurysm would soon burst, but the patient lived until Feb. 1st, dying in the end from exhaustion.

A post-mortem examination was obtained, and it was then found that the aneurysm, which was of the dissecting type, sprang from the anterior wall of the ascending arch of the aorta, beginning close to the aortic cusps, whose relative positions, however, had not been altered by the tumour. There were a few scattered patches of atheroma in the posterior wall of the ascending arch, but the valves were quite healthy. A portion measuring 2½ inches had been completely eroded through those portions of the third and fourth ribs on the right side which lay in front of the growing aneurysm, and their macerated ends were embedded in the wall of the tumour. The second and fifth ribs were also considerably affected and had been bent aside by the increasing pressure. The original wall of the aneurysm had become fused with the overlying tissues—skin, fascia, muscle, and other structures being blended into a tough, thick coating which enclosed the tumour, whose substance was found to be filled with firm white laminated clot that was closely adherent to the vessel walls, only a comparatively small lumen being left for the blood stream, thus accounting for the absence of a systolic bruit and of an accented second sound over the aneurysm. Practically the whole of the right lung was collapsed, considerable pressure having been exerted, not only on the right bronchus, but also directly on the lung itself. The posterior wall of the chest was unaffected.

I am indebted to Dr. G. W. Crowe, senior physician to the Worcester General Infirmary, for his kind permission to publish these notes.

Belfast.

EXTRATHORACIC ANEURYSM OF THE TRANSVERSE ARCH OF THE AORTA.

BY D. W. KEILLER MOODY, M.D., C.M.ABERD.

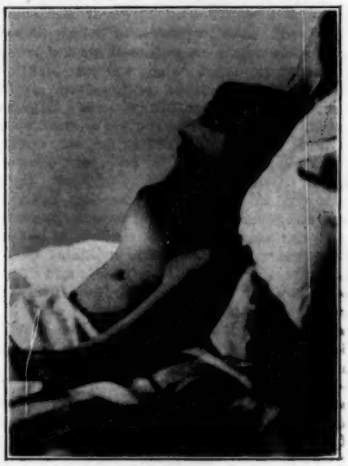
THE following case is interesting in many ways. It shows: (1) the tremendous strain which the aorta can stand; (2) the large amount of erosion which may take place; (3) the fact that although every physical sign of aneurysm was present there was not a single symptom; and (4) finally, that death did not take place by sudden hæmorrhage internally or externally, but by a gradual oozing away. The history is fairly straightforward.

The patient, a man aged 48, had 25 years previously, when serving in the army in India, contracted specific disease of a virulent type from a native. He did not continue antispecific treatment more than a few weeks after the disappearance of the primary sore. He had been perfectly healthy since, except that three years ago he had pain in the back of the shoulders and back of the neck, which was more or less periodic, until 12 months ago when he was lifting hay up to a cart with a fork, and he then said he felt something give way. He had to stop work and he noticed at the top of the sternum a lump about the size of a small hen's egg. The pain at the back of the shoulders and back of the neck ceased from that time. The "lump" did not prevent his going about, but as it got larger he found he could walk less, and five months ago he had to take to bed, where he remained until his death.

I think there is no doubt that the pain was aortitis which associated with syphilis leads to loss of elasticity and local rupture. There was no arterio-sclerosis noticed in the arteries, although the coats of the aorta must have been weakened by it before compensatory endarteritis had developed and the rupture of the intima was the "lump" the patient saw. There were no pressure symptoms, no engorged vessels of the head or arms, or œdema of the arms, showing that there was no pressure of the sac on the superior vena cava or subclavian; no ascites or œdema of the feet. The right recurrent laryngeal nerve was not affected. There was no cough or dysphagia and no difficulty in taking food. The pulse was very weak.

On inspection the face was pale and the conjunctiva normal. The veins of the chest were engorged, a heaving impulse being noticed. The apex beat could not be felt. Half of the sternum, one-third of each clavicle, and the costal cartilages and part of the first four ribs were all eroded away. On palpation the pulsation was forcible, slow, heaving, and expansile. The resistance was very great, as one would expect in such a large tumour. A systolic thrill was present. The percussion note was quite flat and the dulness extended all over the "tumour." On auscultation there was no murmur at all, probably due to the thickness of the fibrinated clot which lined the walls of the sac. There was, however, an accentuated second sound. There were no tracheal tugging and no pain or any discomfort right up to the end, and the patient took and enjoyed his food. There was no dyspnœa. In fact, there was every physical sign but no symptoms. He had the usual treatment of potassium iodide and rest in bed.

Death was due to a gradual oozing away of blood from three points in the sac and the patient died from exhaustion. The "tumour" did not recede at all after death. It measured 23 inches in circumference and 11 inches across. The photograph here reproduced is interesting, as it was



taken about ten days before the man died—that is to say, four days after hæmorrhage began. The black mark in the centre of the aneurysm is due to clotted blood.

I was unable to make a post-mortem examination, but I think there is no doubt that it was a true aneurysm of the sacculated type.

Hull.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF MEDICINE.

Diagnosis of Incipient Closed Phthisis.—Nauheim Treatment.

A MEETING of this section was held on March 24th, Dr. S. WEST, the President, being in the chair.

Dr. J. A. D. RADCLIFFE and Dr. O. L. V. S. DE WESSELOW communicated a paper on the Diagnosis of Incipient Closed Phthisis. They said that the proportion of supposed cases of active tuberculosis in which tubercle bacilli had never been demonstrated was considerable. At the King Edward VII. Sanatorium such cases constituted about 25 per cent. of the total admissions, in spite of the employment of the sedimentation method of sputum examination which diminished the group by 40 per cent. It was therefore important to determine what proportion of such cases were actually suffering from active pulmonary tuberculosis. After pointing out certain considerations which suggested that the amount of active disease in this group was not in reality great, the results of complement fixation, opsonic index, and subcutaneous tuberculin tests applied to 42 consecutive non-bacillary patients were detailed. The results of the tests showed very fair agreement, and led to the conclusion that 30 out of the 42 cases were not suffering from active pulmonary tubercle but from healed tuberculosis or other conditions. Of the 30 negative cases none gave a positive focal reaction with tuberculin, one only gave incomplete complement fixation, and one a diagnostic swing in the opsonic index. Of the 12 apparently active cases nine gave a focal reaction to the subcutaneous tuberculin test, in one case no focal reaction was detected, and two were not tested owing to the extent of their lesions; nine of the 12 cases gave complete complement fixation, eight a positive result with the opsonic index, and in four cases tubercle bacilli appeared in the sputum in the course of the reaction, confirming the diagnosis. It would therefore appear that if these were representative cases of the group under consideration, about 70 per cent. of non-bacillary patients are not suffering from active tubercle. The group is therefore quite valueless for statistical purposes.

Professor THEODORE SCHOTT (Nauheim) read a paper entitled "Recent Investigations on the Changes Induced in the Circulatory Apparatus by Physical Methods of Treatment." He said that in cases of heart disease highly gratifying results might be obtained by the use of artificial Nauheim baths prepared with sodium bicarbonate and hydrochloric acid, but their action was decidedly not identical with that of the natural waters. Experiments had been carried out with Strasburger's spirometer-volume-indicator and O. Frank's reflecting or optical sphygmograph on healthy patients and on others suffering from heart disease. These, Professor Schott considered, showed in the case of healthy individuals that the natural effervescing baths possessed a powerful dilating action upon the vessels, such as was not to be found either in the plain water bath or in the artificial CO_2 bath of a corresponding temperature. The systolic and diastolic blood pressures in healthy persons were frequently reduced by the effervescing bath in consequence of free vascular dilatation. In accordance with this the blood pressure, already lowered by a weakened heart, ought to sink still lower, but precisely the opposite took place. This indicated the presence of some other factor which had over-compensated the lowering of the pressure, and which could only be the heart itself. Moreover, the general condition of the patient and the examination of the heart indicated that it became stronger. This increase in strength of the heart's action was confirmed by the increased range of the amplitude of the blood pressure. In cases of hypertonia, on the other hand, Nauheim baths correctly and methodically employed diminished the abnormally high blood pressure and also its amplitude. Slowing of the pulse and improvement of respiration were effected by the resistance exercises, and it would therefore easily be understood that the blood pressure would be influenced by them in the same way as by the effervescing baths. He also spoke of observations obtained by the plethysmograph and by determining the lapse of time between the pulse in peripheral and central arteries. In relation to the balneological as well as to the gymnastic treatment the results of the new experiments coincided with the clinical experiences already published.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Exhibition of Cases.

A MEETING of this section was held on Feb. 27th, Dr. LEONARD GUTHRIE, the President, being in the chair.

Dr. F. G. CROOKSHANK showed: 1. A case of Incurvate Little Fingers in an Afro-Aryan child aged 3 years, the offspring of a male African negro and a female Cingalese, who had been under treatment for rickets for the last 15 months. When first seen, as now, the incurvation of both little fingers was marked. 2. A case of Pre-adolescent Dyspituitarism. The patient was a boy aged 13½ years, who weighed 10½ st. He was obviously very stout, but the distribution of the fat was feminine, and the external genitals were small. There was some skeletal overgrowth, and the size of the pelvis was notable. A skiagram of the skull showing the sella turcica was exhibited.

Mr. J. F. O'MALLEY showed a case of extensive Cicatricial Pharyngeal Diaphragm following scarlet fever in a boy aged 5 years. He had been in a fever hospital for about three months, and on his return it was noticed that he "spoke through his nose." The diaphragm appeared as a continuation downwards of the soft palate, and formed by the union of the free edges of the two posterior pillars. It shut off the naso- from the oro-pharynx, and was complete except at the centre of its upper and lower borders. The upper opening was a small space surrounding the uvula, in which the latter was free to move.

Mr. W. GIRLING BALL showed a case of Cyst of the Cæcum in a male child aged 3 months, causing intestinal obstruction, treated by resection of intestine followed by recovery. A lump could be felt in the right iliac fossa and a diagnosis of intussusception was made. On opening the abdomen a tensely distended cystic swelling was found attached to the outer and posterior wall of the cæcum. The lower three inches of the ileum, the cæcum and its contained cyst, and about two inches of the ascending colon were excised. A lateral anastomosis was made between the colon and the lower end of the ileum and a Paul's tube tied into the open end of the small intestine. Subsequent operations were required to close the fæcal fistula and for acute intestinal obstruction due to adhesions. The cyst contained clear mucoid fluid and was not connected with the lumen of the bowel.

Mr. L. E. BARRINGTON-WARD showed a case of Mammary Enlargement in a boy aged 10½ years. The left breast formed a swelling the size of an orange and was tender at times.

The PRESIDENT showed a case of (?) Kernicterus associated with choreiform movements. The patient, a female aged 1 year 7 months, was the second surviving child of nine, five of whom were jaundiced and died shortly after birth. She also was jaundiced at birth, and remained so for six weeks. The mental condition was very defective and the muscles generally weak and flabby. The choreiform movements were very marked and only ceased when she was asleep. The President suggested that this was an example of survival from the form, usually fatal, of icterus gravis neonatorum, described as kernicterus, owing to the fact that after death the basal central ganglia were found stained deeply yellow, while the rest of the brain was only slightly tinged.

Dr. EDMUND CAUTLEY showed: 1. A case of Multiple Subcutaneous Cysts in the Arms. The patient, a child aged 7 months, had several nodules, varying in size from a millet-seed to a pea, in the left arm. Two removed from the right elbow were found to contain clear fluid. 2. A case of (?) Serous Apoplexy. The symptoms appeared after the patient, a boy aged 7 years, had received a blow on the head. There were persistent headache, whining, restlessness, and occasional vomiting. The abdomen was retracted and double optic neuritis was present. 3. A case of Subacute Nephritis with Ascites and Uræmia. The patient, a boy aged 9 years, was admitted for acute nephritis after two days' illness. There was then no blood and but little albumin in the urine, but the boy got steadily worse, and in

two weeks ascites was noticed which increased to such an extent that paracentesis was called for. Uræmic fits developed, and the child seemed moribund, but under vigorous treatment with vapour baths, subcutaneous injections of pilocarpine, diuretics, and further paracentesis recovery took place. 4. A case of Congenital Hypertrophic Stenosis of the Pylorus. When the patient was admitted the pylorus was palpable and there was marked visible peristalsis. The stools were small, brownish, and contained some fæcal matter. In spite of careful treatment and feeding the child had lost ground, and he had decided that surgical treatment (pyloroplasty) should be carried out.

Dr. F. LANGMEAD showed a well-nourished healthy looking girl, aged 2 years, who had been treated when 7 weeks old for Congenital Hypertrophic Stenosis of the Pylorus. The patient was exhibited to show the good effects which might follow medical treatment, even when a pyloric tumour had been felt.

Dr. JAMES BURNET showed a case of Urticaria followed by Œdema in an infant aged 2 months. The œdema, which was very extensive, involving the trunk and both arms and legs, appeared five days after the urticaria. There was no heart or kidney trouble. It was suggested that the condition was one of angeio-neurotic œdema.

Mr. E. G. GAUNTLETT showed a boy, aged 9 years, who had not been noticed to limp, but complained of pain over the front of the left thigh for nine months. Flexion and extension of the hip were free, but abduction, adduction, and rotation were limited. A skiagram showed marked erosion of the epiphysis, without any rarefaction of the neck. Suggestions as to diagnosis and treatment were asked for.

SECTION OF DERMATOLOGY.

Exhibition of Cases and Specimens.

A MEETING of this section was held on March 19th, Dr. J. J. PRINGLE, the President, being in the chair.

The PRESIDENT brought forward a case of Extensive Carcinoma of the Face occurring in the course of a xerodermia pigmentosa, treated by a massive dose of radium. The patient was a man aged 20. There was a probable history of the same disease in a less marked degree in one brother. He exhibited a typical and severe example of xerodermia pigmentosa with all its cardinal symptoms—viz., "deep freckle-like pigmentation, patches of atrophodermia, stellate and linear telangiectases, warty excrescences, ulcerations, and finally papilliomatous and carcinomatous growths" situated upon the face, ears, neck, hands, forearms, and legs. The disease was noticed when he was about 2 years of age, and had been uniformly progressive. Many of the growths had been removed from his face by scraping on at least 11 occasions, and he had received X ray exposures every other day for a period of two months in the year 1912. On admission to the Middlesex Hospital in December, 1913, he presented a huge dense carcinomatous mass occupying the whole of the left side of the face, extending from the zygoma at its upper part to the angle of the jaw, and thence to the left side of the mouth and involving the upper lip and left side of the nose. It obliterated the left nostril, invaded the upper maxilla, and projected into the buccal cavity. There was also a large carcinomatous ulcer occupying the right half of the chin. The growth was microscopically proven to be a squamous-celled carcinoma. On Dec. 25th an acute septic infection of the whole of this growth occurred, accompanied by high fever, which resulted in disintegration of the growth and the formation of a hideous ulcer discharging externally and into the mouth. Nevertheless, on Dec. 30th, when the sepsis was at its height, three tubes, containing respectively 90, 40, and 22 mgr. of radium bromide, were introduced deeply into the growth and kept there for 21 hours. The beneficial effects of this treatment, which were illustrated by photographs, consisted of (1) great reduction in size of the ulcerated area, (2) almost complete subsidence of the induration surrounding the obvious growth, and (3) shrinkage of the tumour so that it no longer projected into the mouth, restoration of free movement of the jaws, and removal of the obliteration of the nostrils. Over the whole of the irradiated area the abnormal pigmentation almost completely disappeared. Unfortunately, a deep necrosis involving the outer wall of the antrum of Highmore persisted, but the sinus which resulted was healing up rapidly. The carcinomatous ulcer on the right side of the face, which had been treated in the first instance by 40 mgr. of radium bromide in a tube placed on its surface, had not answered satisfactorily to this treatment, but the same amount of radium inserted deeply through its base on Feb. 12th last was beginning to produce beneficial results.—Sir MALCOLM MORRIS confirmed the observation that radium when inserted deeply into the substance of a growth gave better results than when applied on the surface, but if the tube were introduced too deeply there was some danger of hæmorrhage.

The PRESIDENT also exhibited a case of Mycosis Fungoides, *a tumeurs d'emblée*, under the care of his colleague Sir Alfred Pearce Gould. The patient was a man, aged 48 years, who received a severe scalp wound in June, 1910, at the edge of which the first tumour developed about six months after the accident. For about 15 months the tumour was probably solitary; it was then scraped frequently and treated with lunar caustic. In the spring of 1912 numerous horny lumps made their appearance over other parts of the scalp, and tumours also presented themselves on the body and limbs. These were removed on at least 16 occasions in Bristol General Hospital, skin-grafts being applied with admirable local results. The growths were present in great abundance over the face and scalp, the smallest being hemispherical pink nodules about the size of a pea, and these increased in size and coalesced to form large discharging and fungating growths, the most prominent of which were situated in the right supraorbital region and round both ears. Treatment of several of the smaller growths by cautery and carbon dioxide snow had proved unsatisfactory. One injection of salvarsan, despite a negative Wassermann reaction, had yielded no good result. Repeated microscopical examination both in Bristol and at the Middlesex Hospital proved the growths to be purely granulomatous, no recognised specific pathogenic micro-organisms having been detected in them. The patient was now being X rayed.—Dr. GEORGE PERNET had seen salvarsan useless in a similar case.

Dr. E. G. GRAHAM LITTLE showed a case of Granuloma Annulare of twelve months' duration in a young girl.

Dr. G. NORMAN MEACHEN exhibited a case of a young lady in whom numerous Superficially Erosive Patches had been present on the face for 15 months. It had been suggested that they were artefacts, which opinion was confirmed by Sir MALCOLM MORRIS, Dr. PERNET, and the PRESIDENT.

Dr. PERNET showed a case of Angioma Serpiginosum in a girl, aged 15, which began in the left axilla two years previously and spread down the arm as far as the hand, the lesions consisting of finely reticulated blood-vessels leaving temporary pigmentation. He stated that he had found records of only eight or nine cases of this disease, all being in females.—Sir MALCOLM MORRIS referred to a similar case which he had observed.—Dr. H. G. ADAMSON thought the condition came into the category of linear or systematised nævi, which might consist of any of the constituent structures of the skin and might disappear spontaneously.—Dr. S. E. DORE remarked that linear nævi were not generally angiomatous.—Dr. F. PARKES WEBER considered the case as allied to angioma reticulatum or livedo annularis.—Dr. PERNET thought the term nævus should be reserved for conditions present at birth.—The PRESIDENT expressed the opinion that the spontaneous appearance and disappearance of a disease in adult life was hardly consistent with his conception of a nævus even in the most extended sense of the word.

Dr. PERNET also showed a boy with Multiple Lupus of the Face, Trunk, and Limbs of two years' duration without any antecedent history of measles or other exanthem.

Dr. DORE exhibited a boy with Multiple Symmetrical Subcutaneous Fibromata on the elbows, palms, scalp, and left leg. Sections showed coarse fibrous tissue with slight degeneration in parts and considerable vascularity.—Dr. PARKES WEBER remarked that numerous cases of a similar condition were reported, but were associated with rheumatoid arthritis rather than with true rheumatism.—The PRESIDENT pointed out the resemblance to a case recently shown by Dr. J. H. Sequeira, which had been proven to be neuro-fibroma.

Dr. A. M. H. GRAY showed a case of Granuloma Annulare in a boy, aged 4 years, the lesions being situated on the knees and legs. He also exhibited a case of Acne Agminata

on the face and neck of a man, aged 30, there being a few scattered lesions on the body. Sections showed masses of cells deep in the dermis arranged around the sweat and hair follicles consisting of large epithelioid cells, some giant cells, and small round cells. The patient's lacrymal and cervical glands were enlarged. Von Pirquet's test was negative.—Dr. A. DOUGLAS HEATH agreed with the diagnosis, and said that the grouping of the papules in the lower eyelids was characteristic.—Dr. PERNET also concurred in the diagnosis; he remarked that the condition was often associated with excessive sweating, and occurred in persons such as stokers and others; they bore no relation to tuberculosis.—Dr. GRAHAM LITTLE said he had seen a case similar clinically and microscopically.—The PRESIDENT regretted the use of the term "acne agminata"; the disease was certainly not an acne and was not necessarily agminate. He was inclined to the view that it was a tuberculide.—Dr. GRAY replied that the number of cases in which the tuberculous reaction had been negative was against the tuberculous theory, and the lesions did not break down and ulcerate like the hypodermic tuberculides.

Dr. GRAY also showed a man with Recurring Bullæ on the Legs of two years' duration. He had previously suffered from ulcers on the forearms and legs which were thought by Dr. Radcliffe Crocker in 1909 to be tuberculous granulomata. The patient had suffered from tuberculosis of the lungs and also had tuberculous glands in the neck. Dr. Gray suggested that the case might be a bullous tuberculide.—Dr. HEATH said that tuberculous patients were particularly prone to infection by other organisms, and suggested that the bullæ were due to pyogenetic infection on a tuberculous soil.—Dr. ADAMSON regarded the suggestion of a bullous tuberculide as unwarranted. He thought the scars might be syphilitic and the bullæ the result of chronic streptococcic or staphylococcic infection.

Dr. A. WINKELRIED WILLIAMS exhibited a typical case of Nodular Leprosy in a soldier, aged 28, apparently contracted in India. Lepra bacilli had been found in the nasal discharge.

Dr. GRAHAM LITTLE brought forward a woman who had suffered from redness and tenderness of the hands and feet for two years. He suggested that the case was one of erythromelalgia.—The PRESIDENT refused to accept the diagnosis, as the pain was not severe nor the symptoms markedly paroxysmal.—Dr. PARKES WEBER inquired if arsenical poisoning could be definitely excluded.—Dr. J. M. H. MACLEOD said he had recently watched a case in which there had been paroxysmal pain of a severe neuritic type and persistent patches of erythema. He suggested that the affection was a toxæmia.

Dr. GRAHAM LITTLE also exhibited a case the initial lesion of which simulated an Erythema Iris. It had been present for four years with remissions. He also showed a microscopical specimen of the Du Bois Parasite of Pityriasis Rosea.

Dr. H. C. G. SEMON showed: 1. A boy, aged 8, with Hydroa Æstivale of one year's duration. 2. A case of Dermatitis Herpetiformis in a woman, aged 41, who had suffered intermittently from psoriasis for 12 years. The former eruption had existed for two months and supervened upon treatment by cuticura.

SECTION OF PSYCHIATRY.

The Biological Significance of Delusions.

A MEETING of this section with the British Psychological Society was held on March 24th, under the presidency of Sir GEORGE H. SAVAGE.

Dr. HENRY DEVINE read an exhaustive paper on the Biological Significance of Delusions. He said that delusional formations fulfilled a certain definite function and satisfied certain needs, constituting one method of adjustment to experience. Classification, in itself, was not a very vital point, and did not carry one far in the understanding of cases. Each case was, in a sense, an entity in itself. Delusions were the outcome of the reactions to experience, and day-dreams had the same psychological structure as delusions. The highest psychic operation was the adaptation of the individual to reality, the coördination between desires and circumstances. But this high level of conduct could not always be maintained, and there was a tendency to gratify desires by seeking refuge in interior mental operations; they constituted a method of escape from reality in persons who were unable to adjust themselves by action to difficulties encountered from without. There was always a tendency to seek gratification in inferior mental operations—the tired man went to the theatre and for a time lived in the realm of romance and even childhood. The less a person could gratify his impulses by activities the more he fell back upon psychoses as a refuge. In some cases there was an obvious antagonism between desire and circumstance. The victim of dementia præcox, whose delusions appear to be chaotic and meaningless, did not succumb to situations of any particular difficulty, but defects in his personality prevented him from adjusting himself to quite ordinary situations. His delusions related to internal conflicts, the nature of which was not apparent on the surface. Dr. Devine gave details of a very instructive case the history of which showed that, owing to unfavourable conditions in early life, there was a fundamental defect of psycho-sexual evolution, which prevented the patient from effectively reacting or responding to situations as they presented themselves. The result was his relative isolation in the world, and his inability to get into real contact with his surroundings. The resulting complicated delusional formation could be shown to be an attempt at adjustment, each delusional expression indicating a definite purpose and possessing an individual significance. All the time the patient was keenly sensitive of his own incapacity. His delusional phantasy Dr. Devine regarded as compensating; it was a substitute for efficient action. One result of this state was that the patient erected a defensive philosophy for himself, which provided food for his internal psychosis.

The PRESIDENT intimated that the paper would be discussed in conjunction with that of Dr. R. G. Rows, read at the section on Jan. 27th,[1] on the Importance of Disturbances of the Personality in Mental Disorders. He said that in earlier days there was much discussion on the "ego," but he feared little more was yet known about that. He spoke of the changes in personal feeling due to the cutting-off of some channel of communication, and to visceral and organic disorders such as perversion of the ovarian function. He still adhered to his early impression that man seemed to be built along the gastro-intestinal line, and woman along the reproductive.

Dr. A. ERNEST JONES emphasised the point that the delusions in such cases as Dr. Devine described were not truly part of the disease process; they were, rather, healing processes, comparable to a scar following an operation—an evidence of disease, but not part of it. That was in opposition to the prevailing psychiatric view, which would regard the delusions as an integral part, and estimate the severity of the disease process in terms of the delusional manifestations. A very practical point was that many held that the physician should try to break down these delusions by argument, &c.; but that did not seem wise, as it would be taking away his biological mode of defence, his bulwark against the world with which he was unable to battle. The delusions should be attacked with the greatest circumspection and slowness.

Professor W. BROWN said that in Dr. Rows' paper there was a good deal of assumption that physiological processes were satisfactory explanations of psychological disturbances, if such processes could be found in the case. But the more one studied the question from the psychological point of view the more one felt that though the organic sensations were, perhaps, part of the emotion, emotion contained much more than that. The general trend of psychology was to consider the question from the standpoint of separate instincts rather than of sensations, to adopt a view which was a compromise between the physiological and the psychological. Organic sensations were instances in the development of changes of personality, but not the essence of them. It was difficult to understand how toxic substances could influence changes in personality, regarding that as different from change of tone, such as was felt at puberty. Dr. Devine's paper seemed to offer a much more satisfactory psychological explanation; it supported the Freudian view that there was a rift in the lute quite early, and further manifestations ensued later.

Dr. T. W. MITCHELL thought Dr. Rows' paper was of

[1] THE LANCET, Feb. 14th, 1914, p. 460.

great value to those engaged in psychotherapeutics, because they were in their daily work encountering cases of disintegration of personality which had not passed the shadowy boundary line into insanity. He gave details of an instructive case in his practice which eventuated in a detachment and aloofness from the world. He thought Dr. Rows was keeping in touch with the best psychological thought when he subscribed to the view that efforts formed the nucleus of the "ego."

Dr. ROWS replied on the discussion, remarking that Dr. Devine's and his own paper were mutually helpful. The cases which both were based upon showed a psycho-sexual mal-development. What it was which sent these people "over the line" he did not know, but it might be some toxic influence acting on the brain cells to interfere with nerve processes. He suggested, with Myers, that the only influence which the emotions had was to emphasise the pleasure or displeasure which accompanied the satisfactory carrying out of the dynamic processes in the brain which were associated with thought. He did not think Professor Brown and he were far apart on this matter, seeing they were agreed that the organ sensations were not a fundamental part of the personality. He related Sherrington's experiments with dogs to show that though section of the cord in the cervical region was done the dog still showed aversion to dog's meat, though it readily ate horse flesh. He concluded by a reminder of the work of Dr. David Orr and himself in connexion with the effect of various toxins on the sympathetic system.

Dr. DEVINE also very briefly replied.

LIVERPOOL MEDICAL INSTITUTION.

Jejunostomy for Malignant Stricture of the Œsophagus.—X Ray Treatment of Ringworm of the Scalp.—Electric Treatment of Milk.

A MEETING of this society was held on March 19th, Dr. E. W. HOPE, the President, being in the chair.

Mr. D. DOUGLAS-CRAWFORD read a note on Jejunostomy for Malignant Stricture of the Œsophagus. In his opinion gastrostomy was not as valuable an operation in cases of malignant stricture of the œsophagus as jejunostomy, though he described seven cases in which he had performed this operation.—Mr. F. A. G. JEANS looked to the œsophagoscopist for help in the future.—Mr. F. C. LARKIN shunned both gastrostomy and jejunostomy.—Mr. R. W. MURRAY asked if the operation was worth while: he was not sure whether it prolonged the patient's life.—Dr. J. E. MCDOUGALL and Mr. T. H. BICKERTON also spoke, and Mr. DOUGLAS-CRAWFORD replied.

Dr. W. C. ORAM read a short paper on X Ray Treatment of Ringworm of the Scalp. He said the value of X rays in the Treatment of Ringworm of the Scalp depended on the depilatory effect. He described the apparatus and the methods of estimating the dose. The usual time for an exposure was from four to six minutes. The application of the rays at five chosen areas would depilate the scalp. He advised a 10 per cent. ointment of salicylic acid to be rubbed into the scalp after X ray treatment, the head being carefully washed. By the fifteenth to the twentieth days the hair fell out, because the action of the X ray was to arrest the activity of the hair papilla. Of a very large number of cases treated last year 80 per cent. were cured at the first exposure, the average duration of the treatment lasting four weeks.—The PRESIDENT referred to the prolonged loss of school attendance due to ringworm when treated by ordinary methods.—Dr. F. H. BARENDT stated that since the statutory inspection of school children the very severe type of ringworm had practically disappeared.—Dr. R. W. MACKENNA considered that the margin of safety in the duration of exposure in the method used by Dr. Oram was very small.—Dr. ORAM replied.

Professor J. M. BEATTIE submitted a paper on the Electric Treatment of Milk. The two problems to be solved were: 1. Could the pathogenic bacteria be destroyed? 2. Could the milk be turned out free from pathogenic bacteria and yet otherwise unaltered? He described the initial difficulties. He then gave a detailed description of the apparatus he employed. A rapidly alternating current was used, and there must be no eddies in the milk and no cessation of flow. He gave an account of numerous experiments showing the effect on the bacteriological content of the milk. So far milk infected by tubercle had been rendered free from tubercle bacilli and the bacillus coli group. Guinea-pigs were freely used in the experiments. The only bacteria left in the milk were sarcinæ, sporing bacteria, and occasional streptococci, the bacilli coli group and the tubercle bacilli being invariably killed. Careful examination of the treated milk revealed no difference between it and fresh milk, the milk tasted the same and had the same odour as fresh milk, and its keeping power was greatly increased. He stated that the plant was devised and many experiments carried out by Mr. Lewis, of the Bacteriological Laboratory, to whom the success of the experiments was due.—The PRESIDENT referred to the very large voltage used and also to the effect that the new apparatus was "fool-proof." The real object of the investigation was the prevention of infant mortality. 25,000 children had been fed from sterilised "humanised" milk in Liverpool in the last 15 years with most excellent results, but he realised that they had now come to a much better way of dealing with the milk.—Mr. G. C. E. SIMPSON drew attention to the biochemical aspect of the problem of milk sterilisation, mentioning the work of Fröhlich, Holst, and Funk. His own work had shown that the present method of preparation by the Liverpool Corporation did not destroy all the essential antiscorbutic vitamines of fresh milk, and suggested a trial of the biochemical properties of the milk treated by the high electric currents before it was used widely.—Professor ERNEST E. GLYNN referred to the importance of the work done by Mr. Lewis.—Dr. R. STENHOUSE WILLIAMS regarded Professor Beattie's method for sterilising milk as the best yet discovered, since from the chemical standpoint it left the milk practically as in the raw condition. At the same time the question of its effect upon vitamines was in doubt, and the importance or otherwise of this in sterilised milk used for children should be absolutely settled before any such method was officially adopted. In his view the question was whether they ought not rather to improve the methods used in the taking of the milk instead of covering up bad work by sterilisation.—Mr. A. C. LEWIS spoke about the electric technicalities of the treatment of the milk. An electrothermal formula must be satisfied to get the best results. He described the safeguards employed.—Mr. GOLDING (Reading) required more investigation from the chemical and biochemical point of view. He mentioned that copper electrodes might erode and precipitate copper in the milk and produce a taint, and inquired if this method had been applied to water, and what the probable cost might be.—In the opinion of Dr. J. MURRAY BLIGH the value of the results depended upon the results obtained by feeding the milk so treated to children. Sterilisation of milk was a retrograde movement.—Professor BEATTIE, in his reply, admitted that a clean milk-supply was certainly the ideal, but if it proved impossible to obtain an adequate supply of pure milk then sterilised milk was essential. He agreed that the whole system should be tested for one year before being set up elsewhere.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

Amyotonia Congenita.—Some Causes of Failure in Vaccine Therapy.

A MEETING of this section was held on Feb. 27th, Dr. J. F. O'CARROLL, the President, being in the chair.

Dr. F. C. PURSER showed a male, aged 2¼ years, suffering from Amyotonia Congenita. The condition dated from birth. The child had been always unusually soft; he never used his arms till 8 or 9 months old; "his head used to fall about any way"; "the neighbours used to come to see where his legs could be put." The child improved gradually till 15 months old. At that age he got acute rickets. Occasional well-marked nystagmus; discs normal. As regards flaccidity, softness of musculature, absence of deep reflexes, and electrical reactions the case fell into line with others described. Facial and trunk muscles least affected, arms next, legs most of all. The child's general condition had improved during the four weeks he had been under observation. Dr. Purser thought that this was the first case of amyotonia congenita reported in Ireland.

Dr. WILLIAM M. CROFTON read a paper on Some Causes of Failure in Vaccine Therapy, which appears in full in our columns this week.—Dr. R. J. ROWLETTE said there was very little in the paper with which he did not agree. With regard to pyorrhœa alveolaris, the difficulty was that in nearly all cases there was a mixed infection, and in mixed infections the difficulties of treatment were enormously increased. Even the most acute single micro-organism was more satisfactory to treat with vaccine. As the writer of the paper relied on a mixed vaccine from the first culture, Dr. Rowlette asked how such vaccines could be standardised. It was recognised that after the initial dose one might be guided by the reaction of the patient, but in the beginning we should have an approximate idea of the number of organisms. His own method was to choose one micro-organism, such as streptococcus, and treat with it for some little time, and in this way the size of the dose to be given could be much better judged. He had seen mild and early cases of pyorrhœa alveolaris cured, but where the case had advanced he had not seen such good results from vaccine treatment alone, and he considered careful local treatment was necessary. For boils he always gave a stock staphylococcus aureus vaccine while an autogenous vaccine was being prepared; but in two recent typical cases of boils he had found the infecting organism to be streptococcus. With regard to the treatment of acne, which was always a mixed infection, he experienced the greatest difficulty in growing the acne, and preferred to treat with staphylococcus first and with acne bacillus afterwards.—Dr. O'FARRELL said, with regard to prognosis with any form of treatment, the result largely depended on how the patient reacted, and a cure could not be promised until this was ascertained. This condition applied to every treatment as well as to one by vaccines. The selection of the material from which the vaccine was to be made was of importance; also the question of dose and the method of giving it. It was agreed that an autogenous vaccine was the proper one to use if possible in all cases. He did not see much difference between making the vaccine from the primary culture and making it from the subculture. A point in favour of making the vaccines from the original culture was that the cocci would be obtained in a more virulent state. He considered it advisable to follow the case instead of slavishly following any regular dosage.—Dr. CROFTON in reply said with regard to the questions of standardisation and initial dosage, the latter was one of very great difficulty, because the vital power of the toxin used was not known, and the physician must commence with a small dose. There was one point not mentioned in connexion with dosage—viz., in cases of infection of the lungs the initial dose must be very much smaller than in other cases. The method of standardisation adopted was to count the organisms on the slide, and in cases of mixed bacteria the whole lot were counted together without distinguishing between the different kinds. In cases of pyorrhœa alveolaris the patients should always be sent to the dentist to see if there were any pockets requiring drainage.

ULSTER MEDICAL SOCIETY.—A meeting of this society was held in the Pathological Laboratory of the Queen's University on March 19th, Mr. A. B. Mitchell, the President, being in the chair.—Sir John Byers showed a series of recently mounted Obstetrical and Gynæcological Specimens used in practical teaching in his class in the university: (1) two fœtuses surrounded with their membranes and attached placentæ from a case of twin labour; (2) a uterus with contained fœtus removed by hysterectomy for an interstitial cervical fibroid; (3) a uterus removed for a fibroid, partly interstitial and submucous, with thickened uterine walls; (4) a section of a fibroid of the ovary; (5) a section of a multinodular myoma of the uterus; (6) a carneous mole showing a small fœtus in the amniotic cavity; and (7) a large ammonium-magnesium-phosphatic calculus formed round a hairpin removed by section of anterior vaginal wall.—Sir John Byers also gave an account of an old operation (described by the late Dr. George Kidd, Master of the Coombe Hospital, in the *Dublin Quarterly Medical Journal*, May, 1871), which had been recently revived, for dividing the neck in a neglected shoulder presentation, which consisted in sawing through the neck with a hard well-twisted cord.—Dr. T. S. Kirk read a short paper on the Value of Bacteriological Examination of the Urine. His custom was to plant out all urines, and if there were organisms present, to employ vaccines made from them. He believed this course had helped him in avoiding what otherwise might have been unpleasant complications (suppuration, &c.) after operation.—Dr. Thomas Houston gave an account of some very interesting cases in which patients suffering from rheumatic affections were cured when it was found that the condition was due to oral sepsis, and when vaccines made from the septic organisms were employed. In one of the cases the illness had extended over seven years, the back (lumbago) and knee being affected. The latter condition had been diagnosed as gout, tuberculous arthritis, and as hæmophilic arthritis. An account of another case, which had lasted from 1911, was given which clinically resembled rheumatoid arthritis. Both cases had visited several well-known health resorts, but were not cured until vaccine treatment (on the discovery of oral sepsis) was employed.—Dr. Houston and Dr. W. W. D. Thomson gave an account of three cases (one a medical man who was infected by washing out a bladder of an old patient with prostatic disease, another an old lady whose nails looked like psoriasis for a time, until pus exuded from beneath them) of Septic Onychia due to bacillus coli.—Dr. C. G. Lowry showed a Fœtus and Placenta from a case of interstitial gestation.—Dr. Thomson gave a very full account of the retention of urea in the blood in the course of chronic nephritis, based upon the work done in Widal's laboratory, and explained how œdema was due largely to the retention of chlorides in the serum, while torpor was dependent upon the retention of urea.—Dr. Thomson described and showed some peculiar crystals found in a case of Purulent Meningitis. He also demonstrated Abderhalden's Test for Pregnancy, and Ascoli's Meiostagmin Reaction for Cancer.—In the discussion on the above communications the following took part: the President, Sir John Byers, Dr. J. Macllwaine, Dr. G. Hicks, and Professor T. Sinclair.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 17th, Dr. J. C. Sykes being in the chair.—Dr. J. T. Kitchin read a paper on Sore-throat. He said that the definition of the word "throat" was vague. He divided sore-throat into pharyngeal and laryngeal. He discussed the anatomy and physiology of parts involved with special reference to tonsils and lymphatic drainage of various parts, in respect of diagnostic significance. He said that the character of the pain was mere discomfort, smarting, acute pain, shooting up the Eustachian tubes, but that it was no guide to the gravity of the condition underlying. He mentioned the common occurrence of sore-throat from chill and infection and as part of a general catarrh, also in many general diseases, after certain drugs, in "tonsils and adenoids," retropharyngeal abscess, septicæmic conditions, cancer, tubercle, syphilis, thrush, and various infectious fevers. He made special reference to sore-throat in infectious fevers, and considered the difficulties of diagnosis especially in mild cases, age factor, concurrence of fevers, supervention of one disease on another, occurrence of sore throat in laryngismus stridulus, laryngitis, measles, sore throat in scarlet fever, sore throat in diphtheria, and mumps. He discussed the reasons why diphtheria cases come under treatment late, the prognosis in respect of scarlet fever and diphtheria sore throats, the importance of age factor in both, and the treatment of sore throats. He gave statistics (1) from 2078 diphtherias; (2) from 1049 clinical diphtherias such as would have been recognised in the old days, and in which the precise day of disease was obtained; and (3) from 205 tracheotomies.—The paper was discussed by Dr. Sykes, Mr. W. Beckton, Dr. J. F. Allan, Dr. F. W. Goyder, Dr. S. Lodge, Dr. D. Clow, and Dr. F. W. Eurich.—Dr. Kitchin replied.

BRITISH OTO-LARYNGOLOGICAL SOCIETY.—A meeting of this society was held on March 18th, Mr. C. A. Adair-Dighton being in the chair.—Mr. Charles J. Heath gave an epidiascopic demonstration of the Various Routes of Drainage of the Middle Ear in the early stage of aural suppuration. He showed the natural drainage system; some normal antral conditions which were safe and others which were not; photographs of antral and tympanic conditions, which, after an attack of otitis media, were liable to perpetuate disease; coloured illustrations of the early

tympanic changes which occurred in otitis media; and the mechanical causes of the various amounts of deafness which exist in the early stage of this disease. He next described the obstruction of drainage which is usually responsible for acute mastoiditis, and the six main routes through the diseased tympanum by which antral drainage escaped, and gave mechanical explanations of the diversity of situation in which perforation of the drum-head occurred. He pointed out that prolonged discharge of irritating antral secretion through the tympanum usually leads to deafness through irreparable damage to the delicate tympanic apparatus, and insisted that this discharge should be arrested by operation, if necessary, before the tympanic damage was so advanced as to cause permanent deafness.

CARDIFF MEDICAL SOCIETY.—The annual address to this society was delivered by Mr. Stephen Paget, Mr. Cornelius A. Griffiths, the President, being in the chair. The subject was Kinematograph Views of Living Micro-organisms, and this was made exceedingly interesting to a large audience of medical men and their friends. Mr. Paget described at length several groups of organisms—bacilli, spirilla and spirochætæ, the diseases produced by them, and their intermediate hosts. The films illustrating blood infected by spirochætæ and the struggle between the white corpuscles and the invaders were especially appreciated. Mr. Paget also showed a series of films illustrating the growth and fertilisation of flowers.—A vote of thanks to the lecturer was proposed by Dr. C. T. Vachell and seconded by Dr. D. R. Paterson.—The society's dinner was held in the evening at the Royal Hotel, under the chairmanship of the President. The usual toasts were honoured, and that of "Our Guests" was proposed in a happy speech by Professor J. B. Haycraft, who dwelt on Mr. Paget's valuable services to the Research Defence Society.

Reviews and Notices of Books.

Meningococcus Meningitis.

By H. HEIMAN and S. FELDSTEIN. With an introduction by H. KOPLIK. London and Philadelphia: J. B. Lippincott Company. 1914. Pp. 313. Price 12*s.* 6*d.* net.

BETWEEN 1903 and 1912 there were at least 7500 cases of meningococcal meningitis, either sporadic or epidemic, in New York City. The disease is of common occurrence in other large American towns, and it has been very carefully studied by a number of physicians and bacteriologists. In 1913 an excellent account of it was published by Sophian, at St. Louis, based on his own observations and researches. Heiman and Feldstein's recent work is somewhat similar. It is founded on the cases of meningococcal cerebro-spinal meningitis treated in Koplik's wards at the Mount Sinai Hospital in New York; it seems that there were some 75 cases.

The earlier chapters of the book give an account of the history, bacteriology, and epidemiology of the disease and its mode of dissemination. In epidemic times the meningococcus can be found in the naso-pharynx of a very large number of healthy persons, or persons with perhaps the signs of a cold in the nose, and it has been estimated that there are 10 or 20 times as many carriers of the meningococcus as there are patients with meningitis. The percentage of carriers naturally varies with the density of the population, and this explains why epidemics of cerebro-spinal meningitis attack chiefly the poorer quarters of large cities. Subsequent chapters deal with the various types of the disease, its symptoms, complications, diagnosis, and prognosis, special attention being paid to lumbar puncture and the changes met with in the cerebro-spinal fluid.

The mortality has varied from 50 to 80 per cent. in the past, but now that the serum treatment of the disease has been well established the outlook is much better, though still very serious, and the last 60 pages of the volume give a full account of this treatment. Several antimeningitic serums are on the market; in America that of Flexner is almost exclusively used; in Europe those of Kolle and Wassermann, Dopter and Jochmann, and Ruppel have been widely employed. All these serums contain bacteriolysins that directly inhibit the growth of meningococci, bacteriotropins that stimulate phagocytosis, and anti-endotoxins that neutralise the endotoxin produced by the meningococci. It is essential that these serums should be given by intraspinal injection, as their curative action is almost entirely local; given by subcutaneous or intravenous injection they are bound to fail. Each injection is eliminated from the subarachnoid space rapidly, within perhaps 24 hours. It is no less essential that the treatment should be begun at the earliest moment possible, and repeated at frequent intervals until the meninges are free from meningococci. The treatment is carried out by performing lumbar puncture and removing a quantity of cerebro-spinal fluid. An equal quantity of antimeningitic serum is then allowed to run into the spinal theca by the action of gravity; in an adult from 20 to 40 c.c., in an infant 10 to 15 c.c. If no cerebro-spinal fluid can be first removed 5 or 10 c.c. of the serum may be injected. The injection should be repeated daily; in protracted cases as much as 800 c.c. have been administered. This treatment has reduced the mortality considerably, but it still leaves much to be desired.

The book is short, complete, thorough in its treatment of the subject, and not overburdened with the detail that is apt to intimidate the practical man. By using large type, thick paper, wide margins, and only setting about 200 words to the page the printer has made at least four times as bulky a volume as was necessary.

Medical Jurisprudence from the Judicial Standpoint.

By W. RAMSAY SMITH, M.D., C.M. Edin., D.Sc. Adelaide, F.R.S. Edin. London: Stevens and Sons. 1913. Pp. 339. Price 12*s.* 6*d.*

Dr. Ramsay Smith on the title-page of this book modestly omits a long record of appointments and experiences which qualify him to write with authority upon medical jurisprudence from the judicial standpoint and from any other. As a matter of fact, although he tells us in his preface that he has set himself "the novel task of viewing the principles and practice of medical jurisprudence from the standpoint of the court, the bench, the judge," we are inclined to forget that any such special feature is claimed by him for his work. Every writer on medical or any other form of jurisprudence is bound to be influenced by the point of view of the judicial bench, in that the decisions which he quotes and the principles which he illustrates have all been laid down by its occupants. Every such writer also must weigh his own arguments and propound his own opinions in a judicial spirit if his book is to be worth anything, and Dr. Ramsay Smith is well qualified to do so. He has held the important office of coroner of the city of Adelaide, and has been called as a medical expert to give his opinion in a very large number of cases in which the lives and liberties of human beings as well as other important issues have been at stake. As a result he has written, and not for

the first time, a book full of practical information and hints for medical men upon subjects which concern them jointly with lawyers, and upon matters as to which the latter will be indebted to the former for guidance.

Some of the most interesting cases used to illustrate Dr. Ramsay Smith's observations are derived from his personal experience in Australia, but he treats medical jurisprudence as a cosmopolitan science generally, or at any rate as one to be illustrated from the recorded facts of many countries. It is, after all, the recording of observed facts that is of value in such a connexion, and we are more likely to find useful an account of that which a medical inquirer may have brought to light in a particular State of America than to be interested in the appliction of the law of that State to the conditions revealed. Of the practical hints administered by Dr. Ramsay Smith we might give instances, but are content to indicate two chapters on medical witnesses and others on illustrations of medico-legal investigations and identity, and to leave those who read his book to take what they may prefer. In passing we question whether he justly classes medical men with lawyers as proverbially making the worst witnesses. Medical men vary in their capacity to give evidence well, as do other witnesses, but Dr. Ramsay Smith's work should, no doubt, tend to their improvement.

The Biology of the Blood-cells, with a Glossary of Hæmatological Terms.

For the Use of Practitioners of Medicine. By O. C. GRUNER, M.D. Lond., Assistant Professor of Pathology, McGill University, Montreal, &c. Bristol: John Wright and Sons; London: Simpkin, Marshall, Hamilton, Kent, and Co. 1913. Pp. 392. Price 21*s.* net.

THE writer of the book before us rightly emphasises the importance of studying the tissues which give rise to the corpuscles of the blood as well as, or even in preference to, these cells themselves, to which so much weight is attached in the form of blood-counts and hæmoglobin estimations. The manufactories of erythrocytes, "polymorphs," and lymphocytes are generally regarded as distinct, but there is much resemblance between the tissues concerned, and each probably gives rise to more than one form of corpuscle.

Dr. Gruner follows the views of Pappenheim in his account of the process of hæmatogenesis, recognising a "primordial" cell which is the parent or grandparent of all other kinds of cells found in the blood. This "lymphoidocyte" does not itself normally enter the blood stream, but may do so in certain diseases, as, for example, leukæmia. The nature of this cell and its metamorphoses are described in the three sections of the book forming the first chapter. The next chapter deals with the erythrocytes, which in extra-uterine life are manufactured in the red marrow, though this tissue also gives origin to leucocytes. The variety of views still prevailing as to the process of blood formation is sufficiently shown in this chapter in connexion with the question of the nature and function of the megacaryocyte or myeloplax and of the megalocyte. It is rightly pointed out that anæmia is not a disease of the blood, but a derangement of the blood-forming or blood-destroying organs or tissues. Chapter III. deals with the lymphocyte, which seems on the whole the least uncertain of the problems involved in hæmatology, while the fourth and fifth chapters are devoted to the large mononuclear and the neutrophile leucocytes respectively. Two further chapters deal with inflammatory cells or phlogocytes and with the phenomena of metaplasia in general and in hæmatopoietic tissues in particular. A copious bibliography is appended and also a glossary of hæmatological terms—the latter a most urgent necessity, as the subject is full of "terminological inexactitudes," or at least obscured by a sad confusion of terminology. As an example, we may quote the term "lymphoidocyte," for which there are given over 80 synonyms. We venture to think that few physiologists or pathologists would get full marks for a paper set on the subject of this glossary, embracing, as it does, such terms as "normoskæocytosis," "parachromatinorrhexis," "rhagiocrine," and so forth. As an example of a barbarous formation we think that the word "methylgreenophobic" is what is vulgarly called "the limit."

The book is intended for the practitioner of medicine, but we would warn intending readers that they must not expect to find light mental pabulum. It is not a book "that he may run that readeth." It is, however, well worth study by those who would acquire a knowledge of the existing state of opinion, or rather opinions, in a most difficult field. It is fully illustrated and contains many diagrams and schemes of methods of blood formation.

Ionic Medication.

By H. LEWIS JONES, M.D. Cantab., Consulting Medical Officer to the Electrical Department in St Bartholomew's Hospital. Second edition. London: H. K. Lewis. 1914. Pp. 155. Price 5*s.* net.

OUR appreciation of this excellent work was expressed when reviewing the first edition in THE LANCET of July 12th, 1913, and the fact that this edition was exhausted within six months says more for its merits than anything we could add to our previous comments. As the author states in the preface, "Beyond a little rearrangement of the paragraphs in the first chapter and short additional sections on pericarditis, on teno-synovitis, and on the elimination of lead from the system, the book remains unaltered." We have nothing but praise for this work, which has gained the success it deserved.

La Constipation et les Troubles Intestinaux qui s'y Rattachent.

Par ARTHUR F. HERTZ, M.A., M.D. Oxon., F.R.C.P. Lond. Traduction française par A. E. E. REBOUL, L.R.C.P. & S. Edin. Avec une Préface du Dr. J. CH. ROUX. Paris: Masson et Cie. Pp. 406. Price 7 francs.

THE appearance in French of Dr. Hertz's well-known book upon constipation, embodying the results of his observations upon patients suffering from this condition by means of bismuth meals and the X rays, is an evidence of the general interest his work has aroused. The translation follows closely on the lines of the original,[1] and has been very carefully carried out. The translator explains in his brief introductory chapter that many new observations and certain modifications, owing to further experiments, have been incorporated, so that the French translation is practically a second edition of the original work.

A chapter on hydro-mineral treatment has also

[1] THE LANCET, July 9th, 1910, p. 103.

been added, and in this the uses of mineral waters are discussed, together with the manner in which they produce their effects. The employment of intestinal irrigations of the Plombières type is also described. The sections on treatment are in every case practical and critical. An interesting chapter on the operative treatment of chronic constipation contains a careful and reasoned discussion of the various procedures which have been recommended for this purpose.

We have no doubt that Dr. Hertz's work will receive as full recognition in its French edition as in the original.

A Practical Treatise on Fractures and Dislocations. By LEWIS A. STIMSON, B.A., M.D., LL.D. (Yalen), Professor of Surgery in Cornell University Medical College, New York. Seventh edition, revised and enlarged, with 459 illustrations and 39 plates in monotint. London: J. and A. Churchill. 1913. Pp. 930. Price 24*s.* net.

"Stimson's Fractures" has been before the surgical world for too many years for it to need any kind of introduction; from its first appearance it has occupied a special position in surgical literature, as probably the most complete and trustworthy treatise on the subject with which it deals.

It would be unreasonable to look for any very great alterations in the seventh edition of a work on fractures and dislocations, but alterations there have been, and some of them are of importance. One section, that of the operative treatment of fractures, has necessarily some additions, for it is a subject in which great advances have been made in recent years; and the treatment of old dislocations has also received some additions. Other new sections that deserve mention are those on some fractures of the carpus and of the tarsus, and on the fractures of the external tuberosity of the femur. The introduction of the X rays has done much to bring to the knowledge of surgeons the frequency with which fractures of the small bones of the wrist occur. The two most frequent lesions are fracture of the scaphoid and dislocation of the semilunar bone, and the two are often combined. Various other forms of lesions may occur in the carpus, and in this volume we find a very clear and careful study of them. More than a hundred illustrations have been added to this edition.

LIBRARY TABLE.

The Ego and its Place in the World. By CHARLES GRAY SHAW. London: George Allen and Co., Limited. 1913. Pp. 523. Price 12*s.* 6*d.* net.—In the history of opinion it is by no means rare that ideas and interests which in one generation appear to have entered definitely on the road to decay, to have become hopelessly obsolete and discredited, develop in the next generation a renewed vitality which gives them a force and influence even greater than they possessed before their temporary eclipse. To some extent this is what has been happening with metaphysical speculation. In the high and palmy state of the positive sciences in the mid-Victorian era metaphysics was to all appearance in its decrepitude; the aggressive agnosticism of that day saw in the pretensions of philosophy little more than an aberration of the intellect, and, echoing the sarcasm of Swift, could look only with wondering pity at the spectacle of mortal man "taking it into his head to advance new systems in things agreed upon all hands impossible to be known." But the speculative instinct is far too vital a force in the human mind to be thus easily repressed; and the revival of interest in the old-age problems of philosophy, which is so striking a fact in contemporary thought, is proof enough that man is still a metaphysical animal whose cravings will never rest in a purely agnostic attitude. If, however, we have come back to metaphysics, it is in a spirit rather different to that of the earlier framers of systems. For the most part the philosophical theories of our time have less pretension to finality—very often, indeed, they purport to do little more than express their author's personal attitude towards life; they are frankly and confessedly temperamental. Mr. Shaw's philosophical system is of this character; it is, as he puts it in his preface, his "retort to the world"; and so thoroughly does he adopt this subjective standpoint that in his survey of the questions which he discusses he takes his arguments as much from the works of genius in literature and art as from the learned expositions of metaphysics, going for support as readily to Wagner or Ibsen as to Descartes or Geulinx. It may be open to question whether such an attitude will commend itself to the metaphysician *par métier*, who may not altogether like to find his oracular solution of the riddle of the universe set down as having merely the value of another human document; but it certainly adds to the interest which the book will present to the general reader. The aim which Mr. Shaw has set before himself is to present a philosophic defence of individualism, Viewing the world under the threefold aspect of appearance, activity, and reality, he justifies in regard to each the self-assertion of the ego, so that to the phenomenal, the causal, and the real without, there correspond within, the self-conscious, the self-active, and the self-existent. These three aspects of being are severally related in a special degree to the three great human interests, the æsthetic, the ethical, and the religious, in each of which accordingly there is ground and need for affirming the existence and importance of the *ego*. This attitude implies a certain sympathy with the apostles of revolt in art and ethics, and the author is, in fact, at his best when he is bringing his doctrine into relation with the various expressions in modern thought of this spirit of individualist rebellion against the growing tendency to organise the world in the interest of the general and the ordinary rather than the unique and exceptional. His presentation of the problem of reality, which he seeks to solve on intellectualist principles, is less convincing, probably because, from the nature of the case, it is delivered in language which is nebulous to the point of being almost incomprehensible. While it must be for the experts in these shadowy speculations to decide as to the originality and value of the work from a technical point of view, Mr. Shaw may at any rate be congratulated on having achieved the remarkable feat of writing a quite readable book on metaphysics.

Diseases and Deformities of the Foot. By J. J. NUTT, M.D. With 101 illustrations. New York: E. B. Treat and Co. 1913. Pp. 293. Price $2.75.—Affections of the feet have been greatly neglected by surgeons and are almost ignored by the student. Yet any medical practitioner must be constantly called upon to advise upon some little pain or ache, some difficulty in walking, or some slight deformity, only to find out that a determination of the cause and its treatment is by no means easy. The foot is

an elaborate mechanism, easily thrown out of gear, and the symptoms produced often point only very indirectly to their true cause, so that the proper line of treatment cannot be deduced on general principles, but must be learnt from personal experience or from the experience of others. The present volume is a welcome addition to the special literature of the foot. Whilst in the main it is intended for the general practitioner, yet it is sufficiently full to be of interest to those who are particularly interested in orthopædic surgery. Dr. Nutt deals with each subject from an elementary standpoint, requiring little previous knowledge in his reader, an excellent system in this neglected subject. But he omits little, even of the most recent work, all sorts of methods being mentioned and briefly described. He pays special attention to the physiology of the foot and to minor conditions, such as right-angled contraction of the tendo Achillis, weak foot and flat foot, corns, ingrowing toenail, hammer toe, &c. The one debatable part of the book, to which many will take objection, consists of the author's views upon the normal method of walking. Dr. Nutt seems to believe that the proper mode of progression is toe-walking, and that we should all mend our ways and adopt it. This opinion, perhaps, matters less than might be expected. Its effect is seen chiefly when the author discusses the proper shape of boots, for it leads him to advocate a heel that is no higher than the sole and to prefer the French heel to the Cuban, two recommendations which cannot find general agreement.

Radium Therapeutics. By N. S. FINZI, M.B.Lond., &c., Chief Assistant in the X Ray Department, St. Bartholomew's Hospital. London: Henry Froude and Hodder and Stoughton. 1913. Pp. 112. Price 6*s.* net.—Of the several small volumes that have recently appeared on the subject of radium, the one under consideration is of a more practical character than usual, and its more or less condensed form is accounted for by the fact that the author has discriminated between ascertained facts and results which have not been definitely proved, and this also explains the scanty information furnished on some points. After a brief summary of the physics of radium, the author tells us about its internal administration, following which is a section on the histological action of the radiations. In view of the large amount of experimental work done by the author this chapter is especially valuable. Practical methods of applying radium are given in detail, and many of the author's devices are distinctly ingenious and useful. We note that the treatment of malignant disease of the œsophagus is dealt with in detail and at considerable length, but it is an open question if the results justify the procedure, since the main growth is not affected to any appreciable degree. In some cases, however, it is possible that rendering the œsophagus more patent may add to the patient's comfort sufficiently to make it worth while. A pleasing feature of this book is that Dr. Finzi does not advise the indiscriminate use of radium in all cases of malignant disease, and is careful to point out certain peculiarities in the way epitheliomata, for instance, react to it according to the particular locality affected. While epitheliomata of the lip, cervix, and œsophagus do give good results under radium, he considers it unjustifiable to treat with it those of the tongue and the vulva. Other instances might be given of a critical attitude, and we may add that there is altogether a pleasing absence of unreasoning enthusiasm, that every page shows evidence of careful thought by one who has had extensive experience. This volume will add considerably to the author's reputation as a scientific radiologist.

The Tonsils and the Voice in Science, Surgery, Speech, and Song. By RICHARD B. FAULKNER, M.D. (Columbia University), with an introduction by Professor GEORGE M. SLEETH, Instructor in Elocution, Western Theological Seminary. Pittsburg, Pa.: The Presbyterian Book Store. 1913. Pp. 381. Price $2 net.—This book is described in a subtitle as "a comprehensive monograph on the structure, utility, derangements, and treatment of the tonsils, and of their relationship to perfect tone production, a research study with original contributions from the highest medical and voice authorities." The object of this work, Dr. Faulkner tells us in his preface, is to present known facts, the latest views of the most eminent authorities, and the indications which denote safe lines of treatment as against the *apparent indiscriminate and reckless disregard of tonsillar function.* The italics are the author's. The problems which Dr. Faulkner has set himself to unravel are twofold: What are the tonsils? and what are their functions? The research has been conducted on the lines of a collective investigation. He has addressed "six medical questions" and "six voice questions" to the leading medical and voice authorities respectively throughout Europe and America. The six medical questions were: 1. Have the normal faucial tonsils any functions? 2. What are they? 3. What effects are directly due to their removal? 4. Have phonetic changes been noted. 5. Would you advise the removal of normal tonsils? 6. Remarks. The six voice questions were: 1. Are the normal faucial tonsils of any use to singers? 2. How or in what manner are they of use to singers? 3. Do you know of any instance in which the voice was improved after their removal? 4. Do you know of any instance in which the voice was impaired or ruined after their removal? 5. Is removal of tonsils advisable in singers? 6. Remarks. The replies to these questions are published at some length, and coming as they do from many whose names are household words, are most interesting and valuable—in fact, the replies to the questions constitute the backbone of the book, and readers will feel indebted to Dr. Faulkner for his compilation. Dr. Faulkner, on the other hand, will feel rewarded if his efforts please the expert laryngologists and other interested members of his own profession, as well as the "voice mechanicians, voice trainers, and voice users." Mr. George M. Sleeth in his introduction to the work predicts, and apparently on good grounds, that as a result of the investigation teachers of the voice, both in speech and song, will be more careful in recommending tonsil surgery as a panacea for voice users. The method of treatment of the subject is certainly one *sui generis*, but specialists should be none the less grateful for so much information and such a gathering of famous opinions.

JOURNALS AND MAGAZINES.

Journal of Anatomy and Physiology. Conducted by Sir WILLIAM TURNER, K.C.B., Professor ALEX. MACALISTER, Professor ARTHUR THOMSON, Professor ARTHUR KEITH, and Professor ARTHUR ROBINSON. Vol. XLVIII. Part II. January, 1914. London: Charles Griffin and Company. Annual subscription, 21*s.* post free.—The bulk of the present issue is occupied by contributions from abroad, for less than one-tenth of the subject matter is from the pens of British anatomists. One is tempted to wonder if this is an altogether healthy departure in the only publication devoted to the work of British anatomists. American contributions

occupy 96 out of a total of 111 pages. Dr. A. W. Meyer contributes the description of a series of anomalies under the title of Spolia Anatomica; and Mr. Frank E. Blaisdell, sen., a paper on Measurements on a Human Embryo 30 mm. Long; both these articles are contributed from the laboratories of Stanford University. Mr. M. Amin, formerly of King's College and now assistant professor of anatomy in the School of Medicine, Cairo, describes the Course of the Phrenic Nerve in the Embryo. Descriptions of some vascular anomalies complete the subject matter of this issue. Mr. D. G. Reid records Three Examples of Right Aortic Arch, and Dr. W. E. Carnegie Dickson and Dr. John Fraser describe a Congenital Abnormality of the Heart and Blood-vessels.

Indian Journal of Medical Research. Vol I., No. 3. Published for the Indian Research Fund Association by Thacker, Spink and Co., Calcutta. Price 2 rupees.—The first paper in this number of the *Journal* is a joint contribution by Sir Ronald Ross, Major S. R. Christophers, I.M.S., and Major E. L. Perry, I.M.S., giving the results of an examination of the spleens of some 500 children attending schools in the north of London, this investigation having been undertaken for the purpose of contrasting the result with those obtained elsewhere by the spleen-rate method of measuring malaria in infected localities.[1]—Three papers are supplied jointly by Captain Hugh W. Acton, I.M.S., and Captain R. Knowles, I.M.S., directors of the Pasteur Institute, Kasauli. The first of these (in which Mr. B. Weir, D.Sc., of La Martinière College, Lucknow, also collaborated) deals with the dose of venom given in nature by a cobra at a single bite; the second contains an account of some experiments regarding the dose of venom given in nature by *echis carinata* at a single bite; and the third discusses the nature of the Kurloff bodies, a stage in the development of the eosinophile leucocyte.—Mr. G. F. Adams, I.C.S., a member of a committee appointed in the United Provinces of Agra and Oudh, at the desire of the Indian Government, to inquire into the possibility of improving the sanitary arrangements at fairs and places of pilgrimage, contributes an extremely interesting account, illustrated with numerous photographs, of his inspection of the pilgrim route from Hardwar to Badrinath. In THE LANCET of March 21st we gave some details of this "pilgrim's way," and discussed generally Mr. Adams's report from the sanitary point of view.—Major E. D. W. Greig, I.M.S., gives a description of a number of experiments which he undertook to ascertain the degree of vitality of the cholera vibrio outside the human body. From his results it appears that it is justifiable to conclude that the human reservoir of the cholera virus is the principal source of danger that has to be guarded against, and that the carrier case is the chief factor in the propagation of cholera. The problem of the prevention of the spread of this disease is "the protection of mankind from man."—Major R. McCarrison, I.M.S., whose previous investigations, fully described in the Milroy lectures for 1913, have thrown so much light upon the causation of goitre, describes in a very valuable contribution, illustrated with many microphotographs, the results of some experimental researches which he has made respecting the etiology of endemic cretinism, congenital goitre, and congenital parathyroid disease. These investigations were carried out upon a large number of rats, mice, guinea-pigs, monkeys, dogs, and goats in India. Only a third of the progeny of goitrous rats are born normal; 30 per cent. have congenital disease of the parathyroid glands, and over 60 per cent. are born with congenital goitre. The number of born cretins is comparatively small—about 4 to 5 per cent. In these cases goitre and cretinism are due to the action on the fœtal thyroid gland of toxic substances derived from the maternal intestine. In THE LANCET of March 21st the author published a paper summarising these results. Major McCarrison also furnishes a report upon an inquiry which he conducted respecting the prevalence of goitre among the pupils being educated in the Lawrence Military Asylum, Sanawar, near Kasauli. The disease, according to Major McCarrison, is due to the presence of living micro-organisms in the drinking water supplied to the institution, but goitre can be eradicated at Sanawar by the provision of a water that is chemically and bacteriologically pure. The need for a new supply is urgent, since, apart from goitre, other water-borne diseases of a more serious character are liable at any time to be spread by the present service which is open to excremental contamination.—Captain J. A. Cruickshank, I.M.S., and Captain R. E. Wright, I.M.S., of the Pasteur Institute for Southern India, Coonoor, supply in conjunction a note on some experiments which they performed with a view to finding out the period before symptoms during which the saliva of an animal incubating rabies is infective. From this brief outline of the contributions contained in this number of the *Journal* it will be seen that they are of a varied character and of an interesting kind, as well as being generally of high scientific value.

[1] THE LANCET, March 28th, 1914, p. 909.

Æsculape. Paris: 41, Rue des Ecoles. Foreign subscription, 15 francs; single number, 1·50 francs.—The February number is full as usual of material of antiquarian, historical, philosophical, and artistic interest. How to Struggle with Opiomania is the title of a paper by Dr. Jules Regnault. Dr. Catelan gives specimens of Old Time Bills of Health (*patentes de santé*), Italian, Spanish, and French. Dr. Paul Raymond publishes some unedited notes by Jean-Jacques Rousseau on Botany. M. Marcel Fosseyeux writes of the intention of the Société Française de l'Histoire de Médecine to institute a Paris Museum of the History of Medicine, and describes the ancient Hôtel de Miramion, which it is desired to acquire for the purpose. Dr. A. F. Ledouble discusses Rabelais as a Precursor of the Experimental Method, and Dr. Giuseppe Pordigliotti describes the *É orché* of Saint Bartholomew of Marco d'Agrate in the Duomo of Milan. These *écorchés* were anatomical models showing the outer layer of muscles deprived of their integuments, and were used by the great artists.—In the March number is a paper on Dwarfs and Dements, being Part I. of Medical Notes on the Work of Velasquez, by Dr. H. Verdrier, in which attention is called to the special predilection of that artist for morbid subjects. M. Georges Larier describes a German Medical Engraving of the Seventeenth Century, whose moral is the equality in death of man and beast. Dr. Gabriel Ravarit tells the story of the Suicide of Surgeon-Major Caffé, condemned to death for harbouring General Berton, author of the conspiracy of Saumur against Louis XVIII.—Dr. Laurent Moreau describes Leprosy in the Comoro Islands, and Dr. A. Satre has Some Historical Notes on Private Scientific Collections in England. The Abbé Echamel presents Two Carvings of the Virgin Mary Nursing the Infant Saviour—Notre Dame de Saillant-de-Voulezac and Notre Dame de Bilbac. Finally, Dr. Louis Courtadon writes of the Adenoids of François II. and his Death from the Sequelæ of a Chronic Suppurative Otitis. Needless to say, the illustrations are as usual the fascinating features in this magazine for medical virtuosi.

THE EIGHTH REPORT ON PLAGUE INVESTIGATIONS IN INDIA.

THE eighth report on plague investigations in India, carried out under the direction of the Advisory Committee appointed jointly by the Secretary of State for India, the Royal Society, and the Lister Institute, has just been issued as a supplement to the *Journal of Hygiene*.[1] Our readers are doubtless already aware that much of the credit of establishing the etiology of bubonic plague on a substantial basis belongs to the scientific investigators employed by this Advisory Committee. The report now before us contains eight separate contributions giving the results of the experimental researches conducted by the expert staff since the last report was issued (*vide* THE LANCET, July 5th, 1913). As far as considerations of space will allow we give a short summary of these investigations, but a perusal of the report itself will well repay those who are interested in the subject of plague.

The Influence of Cultivation in Serum-containing Media upon the Virulence and Immunising Properties of the Plague Bacillus.

This research was carried out by Dr. Sydney Rowland, of the Lister Institute, who had previously shown that an effective immunity against a virulent broth culture of B. pestis can be aroused in white rats by a single injection of an extract obtained from bacilli propagated in broth or broth-agar. Further observations demonstrated that, notwithstanding this satisfactory protection of rats against virulent broth-cultivated microbes, the protective power was only of a

[1] The Journal of Hygiene. Plague Supplement III. Eighth Report on Plague Investigations in India. Cambridge University Press, Jan. 14th, 1914. Pp. 278. Illustrated. Price 10s. net.

low order when tested against an organism grown in blood serum. The virulence of B. pestis in certain cases is considerably increased by propagation in serum previously heated to 55° C. It appears that growing in serum, as well as enhancing virulence, modifies the antigenic properties of the bacillus. After making experiments to test the relative virulence of B. pestis grown in various media, including broth, fresh serum, and serum heated to 55° C., and after testing the antigenic properties of the plague bacilli grown in such media, Dr. Rowland expresses the opinion that immunisation, whether by dead or living cultures, is ultimately a question of the reaction of the tissues of the body to chemical stimuli. To obtain the best results it is necessary to arrange for suitable doses of the appropriate stimuli (the right antigen or antigens) and stimulation at the proper intervals. At present this appears best brought about by the local propagation of an attenuated culture in the subcutaneous tissues of the animal. The bacilli growing in the tissue spaces provide by their lysis, and possibly by their action upon the surrounding menstrua, the appropriate antigens, and it is not unlikely that the dosage and spacing of the stimuli may be found to be more favourable than the single injection of a quantity of artificially prepared extract, even if this contained the same antigenic substances. In the case of a flea-borne epidemic of plague we are probably concerned with strains of bacilli grown in serum. The source from which the flea draws its infection is the septicæmic blood of the rat, and during the time the flea preserves plague bacilli in its stomach and intestine, these are growing in serum more or less altered by the digestive juices of the insect. The habits of the flea ensure a constant supply of fresh serum to replace that digested or voided.

The Influence of the Medium in which the Plague Bacillus is Propagated upon the Facility with which it is Ingested by Human Leucocytes.

This formed the subject of a series of experiments by Dr. Ralph St. John Brooks, of the Lister Institute. His results showed that an old laboratory strain of B. pestis grown in heated horse, rat, or human serum did not show an appreciable variation in the phagocytic index with human leucocytes when compared with the original culture. Strains of B. pestis taken direct from an animal dying from the disease show a marked reduction in capacity for phagocytosis which persists for a short time after cultivation on broth agar outside the body. Laboratory races of plague baculli grown on fresh rat or horse serum show a high resistance to phagocytosis and are not ingested by human leucocytes to any appreciable extent. Since virulence of B. pestis is enhanced or depressed, as has been shown by Dr. Rowland, according as the organism is cultivated in heated or fresh serum respectively, power to infect would appear to depend upon factors other than resistance to phagocytosis.

The Morphology of the Plague Bacillus.

Dr. Rowland, during the progress of his researches on plague vaccines, found it necessary to grow B. pestis on various media under a variety of conditions. Probably no organism presents so marked a pleomorphism as the bacillus of plague. Some of the instances of pleomorphism are regarded as worthy of being placed on record. These are shown in a number of microphotographs appended to the report.

Observations on the Mechanism of the Transmission of Plague by Fleas.[2]

In order to elucidate this very important question Mr. A. W. Bacot, entomologist, and Dr. C. J. Martin, F.R.S., director of the Lister Institute, made jointly a careful series of investigations, details of which are described. Plague may be inoculated by the dejecta of infected fleas, but this is probably not the chief way in which the infection is spread. The experiments made under conditions precluding the possibility of infection by dejecta showed that two species of rat fleas, xenopsylla cheopis and ceratophyllus fasciatus, fed on septicæmic blood, can transmit plague during the act of sucking, and that certain of these insects suffering from a temporary obstruction of the entrance to the stomach were responsible for most of the infections obtained, and probably for all. In a proportion of infected fleas the development of the bacilli was found to occur to such an extent as to occlude the alimentary canal at the entrance to the stomach. The culture of the bacilli appears to start in the intracellular recesses of the proventriculus, and grows so abundantly as to choke this organ and extend into the œsophagus. Fleas thus afflicted are not prevented from sucking blood, as the pump is in the pharynx, but they only succeed in distending an already infected œsophagus, and on the stoppage of the pumping act some of the blood is forced back into the wound the flea has made on the skin. Such fleas are persistent in their attempts to feed, and this renders them particularly dangerous. Fleas suffering from this obstruction do not necessarily perish, for in the course of some days the culture blocking the lumen of the proventriculus may autolyse and the passage again become pervious; they are, however, incapable for the time of imbibing fresh fluid, and are therefore in danger of drying up if the temperature is high and the degree of saturation of the atmosphere low. Although as far as these observations go the fleas withstand drying quite as well as unfed normal fleas, their duration of life must be short if hot, dry weather sets in. These investigations seem to suggest the reason why in India epidemic plague is limited to the cooler and moister seasons, and particularly why in Northern and Central India the epidemics abruptly terminate at the onset of the hot, dry weather.

[2] THE LANCET, Jan. 11th, 1913, p. 81.

The Influence of the Medium in which B. Pestis is Propagated upon its Virulence.

Dr. Rowland made experiments which led him to conclude that the serum of the normal rat has the power of depressing the virulence of the plague bacillus. It is inferred that the infection of a rat by plague follows or not according as the infecting organisms when pitted against this property of the rat's serum succeed or fail in breeding out a strain of organisms which can resist this depressing action. The balance between these two possibilities would appear to be a delicate one.

A Study of the Bionomics of the Common Rat Fleas and Other Species Associated with Human Habitations, with Special Reference to the Influence of Temperature and Humidity at Various Periods of the Life-history of the Insect.

This research was undertaken by Mr. Bacot at the instance of the Advisory Committee, and many experiments were made, details of which occupy 200 pages out of the total 278 comprised in the eighth report. The points specially dealt with are the effects of varying conditions of temperature and humidity on the species of fleas associated with rats and man; the tracing, as far as possible, of the critical temperatures and humidities which allow or prevent the breeding of these fleas, and the ascertaining, as far as was practicable, in which of the several stages of the flea's life-history, whether as ova, larvæ, pupæ, or imagines, the effects of extreme conditions of drought and heat proved most fatal.

On the Survival of Bacteria in the Alimentary Canal of Fleas during Metamorphosis from Larva to Adult.

This investigation by Mr. Bacot was undertaken to decide if the gut of the flea larvæ may become infected with bacteria which are present in the food by which they are nourished—e.g., the fæces of their parents; and also if these organisms survive within the gut during the metamorphosis from larva to pupa and pupa to imago. It was shown that the gut of the flea larva may become infected by B. pyocyaneus, B. enteritidis (Gärtner), St. albus and St. aureus; an infection of the larval gut may persist until the resting period of the larva in the cocoon; further, there seems to be no satisfactory evidence that such infections can survive the pupal stage.

The Effect of the Vapours of Various Insecticides upon Fleas (Ceratophyllus Fasciatus and Xenopsylla Cheopis) at Each Stage in their Life-history and upon the Bed-bug (Cimex Lectuarius) in its Larval Stage.

This research by Mr. Bacot was carried out to test the relative efficiency of various insecticides and disinfecting fluids. For killing fleas at all stages naphthalene is the most economical and effective agent, owing partly to the slowness with which it evaporates. It is safe and clean to handle, and there is no restriction in its sale to the public generally. Naphthalene for use in cracks or crevices may be employed in a liquid after being melted, or as a solution in "benzine." Experiments with strongly smelling ointments showed that they were only a partial protection against bugs. For use in rat holes and floors of plague-infected dwellings in hot countries a soap-carbolic or soap-petroleum emulsion might be used with the addition of flake naphthalene. Probably a portable spraying pump could be adapted for such service. By such a method both adult fleas and their brood would be satisfactorily destroyed.

THE LANCET.

LONDON: SATURDAY, APRIL 4, 1914.

The Prevalence of Syphilis.

AT the twenty-fifth meeting of the Royal Commission on Venereal Diseases evidence was given by Dr. J. S. RISIEN RUSSELL, who had been nominated to appear before the Commission by the Royal College of Physicians of London, as to the relation of syphilis to nervous diseases as a whole and to general paralysis and locomotor ataxy especially. His evidence was, of course, to the effect that syphilis is now known to be the very frequent cause of nervous disease, and is a recognised origin of general paralysis of the insane and of locomotor ataxy. He gave no statistics in support of this opinion, but our present knowledge of the pathology of both diseases makes the statement a medical commonplace, which it was necessary to put before the Commission in the simplest terms. SCHAUDINN'S discovery that syphilis is due to a living organism explains the clinical behaviour of general paralytics towards further syphilitic infection; and the positive reaction in such subjects of the cerebro-spinal fluid to the Wassermann test conveys the same message of previous syphilis.

Almost simultaneously with the taking of Dr. RUSSELL'S evidence by the Royal Commission there appeared Part VI. of the Archives of Neurology and Psychiatry from the Pathological Laboratory of the London County Asylums, and in the preface to these Archives Dr. F. W. MOTT, the Director of the Laboratory and Pathologist to the Asylums, with the appositeness and simplicity that always characterise his work, publishes facts of a striking nature supplementing Dr. RUSSELL'S testimony. The first links in the chain of circumstantial evidence which show that if there were no syphilis there would be no general paralysis are set out by Dr. MOTT as follows: "(1) A history of syphilitic affection usually of a mild form as regards secondary and tertiary symptoms can be obtained in as large a proportion of cases of general paralysis as in obvious syphilitic skin lesions. (2) A correlation of the incidence of syphilis and the incidence of general paralysis occurs in the two sexes according to the social grade." That is to say that tabes and general paralysis occur with equal frequency in all grades of society among males, while among females they occur with decreasing frequency as the social scale is ascended. That it is opportunity and not sex which decides the disparity of incidence is shown by the equal distribution of the juvenile forms between the sexes, while among adults a great number of the female paralytics are prostitutes. In addition, Dr. MOTT has found in 60 cases of the juvenile form of general paralysis evidence of congenital syphilis either in the family history or by signs on the body, the significance of which is, of course, that mental stress, alcoholism, and sexual excesses (the causes usually given until quite recently of general paralysis in the adult) could in these juvenile cases be excluded. As to the identity of general paralysis with locomotor ataxy Dr. MOTT endorses FOURNIER'S assertion that tabes dorsalis and general paralysis are pathogenetically one and the same disease affecting different parts of the nervous system. "I collected," he says, "70 cases of tabo-paralysis and 70 cases of tabes dorsalis, and I found that some began as tabes and ended in general paralysis; in others the spinal and cerebral symptoms started simultaneously; while again in others, it began with optic atrophy and ended in spinal tabes or tabo-paralysis. The average time for symptoms to arise after the infection is the same—viz., 10 to 15 years." The relation of syphilis to general paralysis conveys a terrible message as to the prevalence of venereal disease, and as to the ominous nature of its consequence, for 15 per cent. of the male admissions to the London County Council asylums are general paralytics. It is a sad reflection also that the affected persons are generally attacked in the prime of life, and are quite likely to have been satisfactory citizens in body and mind until reduced by their disease to the position of mere burdens to the community. For Dr. MOTT translates the calamity as far as regards the metropolis into money, and points out that some 10 per cent. of the £600,000 spent annually by the Asylums Committee of the London County Council in the maintenance of lunatics is spent upon general paralytics. He asks if it would not be an advantage to the State if some fraction of this money were devoted to the prevention of one of the worst forms of mental disease now that we know the cause; and it is satisfactory to think that to-day all responsible citizens will answer on the side of prophylactic medicine. For the spirit to which the appointment of the Royal Commission on Venereal Diseases owes its origin is now widely diffused.

It is necessary that while we recognise the prevalence of syphilis we should not exaggerate this prevalence, in which connexion Mr. A. CORBETT-SMITH, the editor of the *Journal of State Medicine*, addresses a significant letter to us this week. There is no doubt that figures with regard to the progress both of syphilis and of cancer at home and abroad have been accepted too easily. They have been copied and reproduced without sufficient verification, and if one such blunder is ascertained it becomes difficult to get ready credence for other statistical information of the highest kind. The mischief done to the world by syphilis and its sequelæ is widespread enough—the Wassermann test has proved that, even though we may not be agreed as to its exact value; but nothing is served by frightening the world with untrustworthy figures. Undoubtedly some of the unguarded remarks as to the extent of the

syphilisation present in various communities have been inspired by the intense desire to arouse the public to a sense of danger. But such propagandists should remember, as well as the value of accuracy, the risk of producing the very apathy they hope to dispel. If an evil admittedly very large is magnified, many people will consider that nothing can be done in the face of such appalling mischief. Highly tested scientific statements like those of Dr. MOTT, which are supported throughout by personal work and reference to other sound authority, reveal a quite sufficiently serious state of affairs. There is no need to magnify the evil.

A Question of Medical Privilege.

THE attention of medical men should be drawn to the observations of his honour Judge MELLOR in the Manchester county court, as the important question of the amount of privilege to be extended to a medical witness was introduced in an unusual way. In the case in question a workman claiming compensation for an alleged accident had been attended as a private patient by Dr. G. E. HELME. Dr. HELME was called as a witness, not, however, by the workman but by the employers. While counsel was interrogating him as to what passed between him and the workman after the accident the county court judge interposed questions as to whether the medical man was being paid by the party calling him as a witness, and whether he thought it professional conduct to take money from both sides. In reply to the question, "Do you call it a high ideal of professional conduct?" Dr. HELME answered, "Certainly, because I have to speak from the facts." The judge then inquired, "Do you consider it right as a doctor to disclose what a patient says to you and what takes place?" when Dr. HELME replied, "In court I do." The judge thereupon expressed his astonishment, as all matters between a medical man and his patient were privileged, and it is on this point that reflections always arise, for the most stalwart champions of privilege among us see the possibility of limitations. The evidence was not given, and in announcing his award the judge referred to a case in which he said Lord RUSSELL of KILLOWEN had in a like manner refused to allow a medical man to give evidence. The matter naturally excited comment not only locally, and we were very glad to see that on a subsequent occasion Judge MELLOR again referred to the case, and stated that he had not intended to suggest that the medical man was prepared to sell information which he had received from his patient to the insurance company representing the employers. We regarded his interposition as most valuable to the medical profession, but there was a personal side to it which we felt at the time required modification. Judge MELLOR said, "If anybody is under the impression that I should think that a gentleman in Dr. HELME'S position would do such a thing I take the very first public occasion I can to say that I never for one moment meant to suggest such a thing, and I am very sorry that anything I said should be considered derogatory to a gentleman who holds the high position Dr. HELME does." His honour further explained that being pressed by counsel for the employers for a ruling on the question of privilege he allowed the medical man to go into the witness box, expecting him to ask whether he was bound to answer the questions put, and to seek the protection of the court. Had Dr. HELME done this the judge was prepared to relieve him from the obligation to answer.

It is satisfactory to know that the observations withdrawn or explained by Judge MELLOR were not intended to leave any stigma upon the professional honour of a medical man, who appears to have attached weight to the subpœna of the court which the judge did not, and to have thought that if he had information to give he was bound to give it when sworn as a witness. We feel, moreover, that Judge MELLOR deserves the respectful gratitude of the medical profession for his attitude towards a question which concerns its honour, and as to which there is a judicial discretion rather than an absolute rule of law. This matter of privilege for medical witnesses is one which has been submitted to many judges, and has been decided in various ways according to the circumstances of individual cases. Most medical men would like to be able to claim inviolability for all communications made to them by patients and for all facts observed by them in the course of their professional treatment of persons consulting them. There is, however, no such absolute privilege in this country. In commenting upon Judge MELLOR'S observations the *Times* recently cited a number of cases bearing this out, and quoted from a judgment of Sir GEORGE JESSEL in 1881, who said: "The communications made to a medical man whose advice is sought by a patient with respect to the probable origin of the disease as to which he is consulted, and which must necessarily be made in order to enable the medical man to advise or to prescribe for the patient, are not protected." The true view seems to be that judges, as a rule, will receive but not compel evidence from a medical man as to matters which have come to his knowledge in the exercise of his profession and as a matter of professional confidence. They will respect his scruples as far as possible, and will be slow to force him to give evidence by punishing his refusal to do so as contempt of court. On receiving a subpœna, however, the medical man must attend and claim the court's protection at the proper moment. At the same time, unwilling as medical men are to be witnesses, and glad as they might be to be allowed to claim privilege as a right when asked to disclose communications made to them or matters observed by them in the exercise of their profession, they can hardly desire privilege as it is

enforced, rather than enjoyed, in some countries. In France, for example, the medical man is not merely protected by being entitled to remain silent, but is forbidden to speak—a very different matter if we remember that a medical man by the very nature of his education, professional training, and daily work, is made desirous of performing his part as a good citizen and of seeing justice done. Moreover, in some circumstances it may be necessary for him to speak in order to protect his own honour and credit or those of a professional brother. Many illustrations will occur, but one will suffice. Imagine a patient who has been placed under restraint as insane upon certificates properly given after due examination by two medical men, and who may have been treated by other medical men or otherwise have come under their observation. The patient on recovery may turn against the relations who have been instrumental in placing him in a lunatic asylum, claiming damages in an action in which he alleges that he has been sane all the time. Clearly it would be bad for society if the medical men had to remain dumb. In France apparently it might be quite difficult for the medical man to give evidence either in support of his own certificate or in order to prove that the course taken by the defendants was an absolutely safe and proper one. Instances of this kind which have actually occurred in France will be found in Dr. W. RAMSAY SMITH'S "Medical Jurisprudence from the Judicial Standpoint," which is reviewed this week in our columns.

In some States of America, also, statutes are in force giving privilege similar to that established in France. In Utah, for example, a medical man cannot without the consent of his patient be examined in a civil action as to any information acquired in attending the patient which was necessary to enable him to prescribe or act for his patient. Such a provision as this may be perfectly just and right in its effect in 19 cases out of 20, but in some of the possible contingencies of litigation would lead to a result totally contrary to justice, and might enforce upon a medical man a condition of silence fatal to his own credit and to that of other honourable people, while assisting those unworthy of protection. We would therefore prefer on the whole that the law in England should remain as it is, so long as judges will remember with some feeling of sympathy that they have themselves, before attaining to their dignified position, been members of a profession entitled to preserve absolute silence as to their clients' secrets, and will allow members of the medical profession to preserve similar silence where honourable men should preserve it. No medical man wishes to play the part of a detective or a busybody, but an occasion may arise in the experience of any practitioner when he may have to decide in very delicate circumstances between the interests of society and the interests of a client.

Annotations.

"Ne quid nimis."

THE UNIVERSITY OF LONDON.

THE Faculty of Medicine of the University of London met on March 26th, when Sir Alfred Pearce Gould, the Dean, presided. The report of the Board of the Faculty was adopted, the chairman in his opening speech referring particularly to the recommendation that the elementary teaching of chemistry, physics, and biology should be general and not concerned with the special application of the sciences to medicine, but that special instruction should be given in addition to the medical students upon those branches which form an introduction to the future studies. The recommendation is in accord with the Report of the Royal Commission on University Education in London. The Board of the Faculty of Medicine also agreed that boys should receive their instruction in the preliminary sciences at secondary schools if such training can be provided up to the required standard, though recognising that here instruction in biology offers great difficulty. But the two most important recommendations in the report of the Board, which received endorsement from the Faculty, had reference to the position of the external student in medicine and to the constitution of the Faculty. With regard to the latter, the Board of the Faculty find that if the suggestions of the Royal Commission concerning the control of the schools, the appointment of teachers, and the settlement of educational courses be adopted, the distinction between a school of the University and a constituent college will be very slight; but they consider that the organisation approved by the Commission will place the schools in a disadvantageous position compared to the constituent colleges if separate boards of studies and examinational systems are set up. In the opinion of the Board, which the Faculty have now adopted, it is desirable that there should be uniformity in the courses of study and in the examinations for the medical degrees of the University, and that to attain this end the control of medical education in the University should be in the hands of a strong body representative of all the teachers of all the subjects of the Faculty, irrespective of whether those teachers are connected with a constituent college or with a school. With all of this we have already expressed accord. The Board held that the medical degrees of the University of London should be open only to those who had been students in the constituent colleges or schools of the University for a minimum period of three years. The Faculty accepted the recommendation by a close vote, upon which Dr. Graham Little has sent us a letter which we cannot find space for this week.

COCAINISM IN THE SOUTHERN UNITED STATES.

AN alarmist account of the rapid increase of cocainism in some of the United States, especially Georgia, North and South Carolina, Tennessee, Mississippi, and West Virginia, is given in the *New York Medical Record* by Dr. E. Huntington Williams. He quotes statistics from hospitals for the insane, showing that the proportions of drug-takers admitted to the asylums in these States are from 5 to 15 times as high as in the State of New York. Nor is this the limit of the mischief, for he goes on

to show that prisons and gaols intercept even larger numbers of the drug slaves; and that whereas morphine is the undoing of most of them who are in the asylums, cocaine is responsible for most of those who commit crime. He finds, further, that in the asylums the self-druggers are chiefly whites, whereas in the prisons they are mainly coloured persons. From the figures available he deduces that drug-taking is much more prevalent among the negroes than among the white population, and that it has spread very rapidly during the last five years. To the curse of cocaine taking he attributes a great part of the serious crime of recent years in the Southern States. The negro who has once formed the habit, declares Dr. Williams, is absolutely beyond redemption. His whole nature is changed by the habit. Sexual desires are increased and perverted; peaceful men become quarrelsome and timid ones courageous. Another interesting observation is that these negro cocaine users are astonishingly immune to shock; so much is this the case that the police have adopted a heavier revolver, with greatly increased "stopping" power. It is also stated that the marksmanship of the cocainist is not spoilt, but that he may even shoot with greater accuracy than in his normal state. The cause of the very sudden increase of this demoralising habit is traced by Dr. Williams to anti-alcohol legislation in the States above mentioned. The results of the prohibitive measures enacted have been that the well-to-do can still easily obtain alcoholic liquors, but that the very poor can no longer do so. This affects the negro population much more than the whites, and has brought about the rapid spread of cocainism. Whereas most negroes could quite easily remain very moderate drinkers, and avoid alcoholic excess entirely, it seems that the bulk of them cannot resist excess when cocaine is substituted. There is no such thing, it is alleged, as a moderate or occasional negro cocaine taker. Poor whites, who also find great difficulty in obtaining alcohol, are said to be also drifting into the cocaine habit. If the statistics and conclusions drawn from them by this observer are accurate, it is evident that cocaine is a serious menace to the public health and material prosperity of some of the United States, and that short-sighted legislation is probably an important contributory cause of the situation.

INFECTION OF MILK IN COURSE OF HOUSE-TO-HOUSE DELIVERY.

Dr. J. Priestley, medical officer of health of Lambeth, has submitted an interesting report to his borough council on the occurrence towards the end of last year of an outbreak of diphtheria in Lambeth, Croydon, Penge, and the adjoining districts, which was attributed to milk supplied from a large dairy in Upper Norwood. The milk was obtained from different sources, one of which was a farm where a milker was found to have an ulcerated finger from which virulent diphtheria bacilli were recovered. The nature and origin of the infection which occurred at this farm were inquired into by the medical officer of health of the West Sussex combined district, and have also, we understand, been fully investigated by one of the medical inspectors of the Local Government Board, whose report on the subject will shortly be issued. Dr. Priestley accepts the evidence that the milk supplied from the dairy at Norwood during the period in question in all probability contained diphtheria infection derived from this part of the supply. He has, however, also made a special study of the house-to-house distribution of the milk from the dairy in question, classifying the invaded houses according to the persons who were employed in the daily delivery of the milk, and at an early stage of the epidemic he examined swabs taken from the throats of all the staff so employed. Out of 24 regular or occasional milk distributors at least two were found to be carriers of the Klebs-Löffler bacillus and other two to be carriers of a diphtheroid bacillus. There was evidence that the incidence of diphtheria in the customers of the dairy was somewhat localised and exceptional in the rounds of these four distributors, and Dr. Priestley considers that infection introduced by them may have been an important factor in producing the epidemic among the customers of the dairy. The suggestion is noteworthy, although its proof would have been easier had there been no suspicion that the milk which these men distributed had already been infected before it reached their hands. On general grounds it must be admitted that the possibility of infection of milk in course of its distribution from house to house cannot always be set aside under the conditions of delivery which often obtain in London, particularly when these involve the dipping into milk of measures which have been freely handled by the distributor. Apart from the evidence in this case we think that the employment of a diphtheria-carrier on a milk round may be considered to be attended by some degree of risk, although there are no doubt many other occupations in connexion with the milk trade in which the carrier would have greater opportunity of causing infection of the milk.

FRIEDMANN'S TUBERCULOSIS VACCINE.

IN the *Deutsche Medizinische Wochenschrift* for March 5th the dangers of Friedmann's vaccine have been discussed by Professor Vulpius, who has observed one fatality, and by Dr. C. Laubenheimer, who has subjected to a bacteriological examination the vaccine as recently put on the market. Professor Vulpius gave intramuscular injections to 31 patients in November, 1913, and to 8 patients in the following month. Of the 5 patients who showed a febrile reaction 2 had already been somewhat febrile. One of these suffered severely from the injection, becoming collapsed and jaundiced. In 8 cases abscesses developed at the site of injection. In 15 other cases the vaccine was given simultaneously by intravenous and intramuscular injection according to Friedmann's directions. In all but one of these a violent febrile reaction was provoked; in one case the patient nearly died, and in another the patient died within 48 hours of the injection. This patient was a man, aged 31, who suffered from tuberculosis of the epididymis and ribs. The vaccine was given in the afternoon of Nov. 29th. During the following night rigors were accompanied by a temperature of 41·2° C. and a pulse of 140. During the following day he was comatose, and death occurred on the following night. The necropsy showed œdema of the lungs and a very flabby heart. The cause of death was probably heart failure following septicæmia. The patient who nearly died was a girl, aged 18, who suffered from tuberculosis of the knee. On the day after the vaccine had been given the temperature rose to 39·7° C., and on the following night it rose further to 40·8° C., and was

accompanied by rigors, headache, and palpitation of the heart. On the third day the temperature was 39° C., and the pulse 120. On the fourth day a fall of the temperature to 37·5° C. was accompanied by alarming signs of collapse, including giddiness and excessive perspiration. For some days more she complained of tiredness and irregular action of the heart. In none of his patients did Professor Vulpius find treatment beneficial, and he considers it unjustifiable to administer the vaccine, by intravenous injection at any rate, till its preparation is under public control. Dr. Laubenheimer has examined 13 specimens of the vaccine, and only in 2 specimens did he find a pure culture of turtle tubercle bacilli. In all the rest there were other organisms, some of which, such as the staphylococcus pyogenes aureus, were found by inoculation experiments to be exceedingly virulent.

THE TONSIL AS A PORTAL OF INFECTION.

IN spite of the obvious bearing of the matter on our knowledge of the means by which we may hope to prevent certain pathogenic agents from gaining access to the circulation and thus to the vital organs, the methods by which micro-organisms succeed in passing through the tonsil into the blood-stream have, so far as we know, received but little attention from the experimental point of view. Such investigations as those recorded in the *American Journal of the Medical Sciences* for March by Dr. George B. Wood, of Philadelphia, are therefore to be welcomed not merely by reason of their intrinsic interest, but also because they bear directly on certain of the unsolved problems of infective disease. The animals used for experiment were hogs, and the infective agent employed was the anthrax bacillus. This choice was made because anthrax is a fairly common disease in hogs, the pharynx, and particularly the tonsil, constituting the usual portal of entry. Further, the organism is easily stained and cultivated. The first investigations were made with streptococci from a case of acute rheumatism, but the hog proved absolutely invulnerable to this organism, which was therefore abandoned in favour of the anthrax bacillus. Only five animals were used, and Dr. Wood's paper is, therefore, described as a preliminary report; even so, however, some very interesting results were arrived at. First, it would seem that the selection of the tonsil, rather than other parts of the pharynx, by the bacteria depends on something more than mere contact, for Dr. Wood found that though he tried to swab one tonsil only with the bacterial emulsion, in only one animal were the lesions limited to one tonsil, and in this case the tonsil affected was not the one which had been swabbed. He found also that the organisms did not penetrate the surface epithelium of the tonsil, but only that of its crypts; and that having thus gained access to the tonsillar parenchyma, they proceed to multiply and to induce necrosis of the tissues which they have invaded and thus to pave the way for invasion by staphylococci or other pathogenic agents. The rapidity with which the anthrax bacilli accomplished this penetration into the sub-epithelial tissues depended apparently on the virulence of the strain used, and also on the individual susceptibility of the infected animal. It is in connexion with what is coming to be described as the rheumatic infection that data of this kind are likely to be of most immediate value, and Dr. Wood's investigations are of obvious significance in this direction in that they hint at a special vulnerability of the cryptal epithelium of the tonsils to bacterial invasion. If this is indeed the case, it needs no great flight of the imagination to envisage the manner in which the buccal streptococci break away from their normal habitat into the systemic circulation. So important a matter as this, however, demands precise knowledge, and it will appreciably further the prevention of rheumatic infection and all its attendant ills when experiment has shown the exact path by which this invader enters.

THE UNIVERSITY BOAT RACE.

THE University Boat Race was won this year by the Cambridge men, a remarkable crew of young giants, their average weight being over 12 st. 9 lb., while the shortest man in the boat stood 5 ft. 11 in. The theory that, other things being equal, the heavier crew will generally win was confirmed by this victory, which, however, seems to have been attributable rather to the inferior combination of the Oxford representatives. Some illustrations of the losing crew in a "cooked" condition at the end of the race have brought the usual questions as to the wisdom of these strenuous competitions; and Sir Thomas Oliver, in an address which we publish this week upon Medico-social Problems from an Insurance Point of View, refers to the fact that as an examiner for several life insurance offices he has been told by would-be insurers that when rowing in a competition they have been "completely blind on reaching the goal; they could not stand; they had to be lifted out of the boat." The terrible strain on the whole system thus indicated is, we believe, extremely rare, while investigations into the after-history and health conditions of the Oxford and Cambridge crews, though too slight to be conclusive, have indicated little, if any, difference between the mortality amongst University oars and amongst their less athletic compeers. Undoubtedly, however, some physicians have seen cases where cardiac strain, earned by rowing, has led to serious results.

THE RELATION OF TUBERCULOSIS AND TYPHOID FEVER.

AN address on Tuberculosis following Typhoid Fever was given recently at the Academy of Medicine, New York, by Colonel C. E. Woodruff, M.D., late an officer in the United States Army Medical Service, and now co-editor of *American Medicine*, where his remarks may be read in full. Finding that tuberculosis is a more or less frequent sequel of typhoid fever—for example, Professor Maurice Letulle, of the Paris Faculty of Medicine, is responsible for the statement that he has long noticed that patients discharged cured of typhoid fever not infrequently return to the hospital in four or five months' time with tuberculosis, and that sometimes the interval is so short that one process ran into the other—Dr. Woodruff recognises meningitis to be a cause of death in typhoid fever. Dr. Woodruff holds that all civilised populations are undergoing constant auto-vaccination against tuberculosis because of the universality of infection, but holds that infections like those of measles, whooping-cough, and typhoid fever do not render them susceptible to tuberculous invasion, but reduce resistance to the bacilli which are already entrenched. Typhoid fever, from this viewpoint, being more lowering to the vital resistance than most diseases, leaves its victim susceptible to

tuberculosis. By the aid of statistics and charts, collated from information obtained from almost all parts of the world, he shows that, with very few exceptions, in those countries or districts in which typhoid fever is prevalent tuberculosis is also rife. It may be added that Dr. C. H. Spooner, in the *Journal of the American Medical Association*, and Dr. Louis and Dr. Combe, assistants to Dr. Vincent at the Val-de-Grâce in Paris, have all suggested that the administration of antityphoid vaccine may bring out latent tuberculosis. Dr. Vincent has stated that the vaccine acts like tuberculin, and that he and his fellow workers have been able to detect active tuberculosis in cases where the condition was not suspected before the inoculation. Colonel Woodruff, in referring to the statistics which support his argument that reduction of typhoid fever goes hand in hand with the decrease of tuberculosis, quotes those of the British army, and especially of the British army in India, and concludes by urging that if typhoid fever is frequently the means of stirring into activity the germs of tuberculosis, then it must be rational treatment to employ the same measures with typhoid fever patients as with tuberculous patients—that is, to feed them liberally and to keep them in cool or cold air. Colonel Woodruff's view must be subordinated to local circumstances and only followed with caution.

PULSATING EXOPHTHALMOS CONTROLLED BY PRESSURE ON THE OPPOSITE CAROTID.

IN the *Australasian Medical Gazette* of Jan. 17th Dr. W. O. Maher has reported two cases of pulsating exophthalmos which presented the peculiarity that the pulsation was controlled by pressure on the carotid artery of the opposite side. In the first case a healthy, well-developed man was seen in June, 1910, for left pulsating exophthalmos. He stated that ten months previously he had received a blow on the head with a stick, which rendered him unconscious for 30 hours and more or less dazed for a week. Three weeks after the injury his right eye began to protrude, and he suffered from tinnitus and headaches. His condition became steadily worse and he was admitted into hospital in Brisbane, where the eye was removed. Profuse hæmorrhage, which proved nearly fatal, followed. Three weeks after the operation the left eye began to protrude and throb. On examination there was marked pulsating exophthalmos of the left eye, which was completely controlled by pressure on the right carotid artery. A loud bruit was heard over the eye and temporal region. The conjunctiva was œdematous, its vessels were engorged, and the pupil was dilated but reacted to light and accommodation. The retinal veins were dilated and tortuous, and there was marked œdema of the optic disc and retina. He suffered acutely from headache and a whirring noise in the head. Dr. Maher sent him into St. Vincent's Hospital, Sydney, where Dr. R. Scot Skirving tied the right internal carotid artery on June 20th, 1910. Pulsation at once ceased and the exophthalmos diminished. He was seen again in July, 1913, when there was no exophthalmos, and except for slight pallor of the optic disc the eye was normal. He still suffered occasionally from headaches, but they were not so severe as before the artery was ligatured. Otherwise he was in good health. In the second case a youth, aged 19 years, fell a distance of 45 feet down the shaft of a mine and fractured the base of the skull. He was unconscious for several days. Six weeks after the accident the left eye began to protrude. The protrusion steadily increased for some weeks and then gradually subsided, and about five weeks after the accident the eye had returned to its normal position. But while the protrusion was subsiding the right eye gradually became more prominent. He suffered much from headaches and noises in the head. On examination on Oct. 1st, 1913, the right eye was proptosed and convergent, the conjunctival vessels were enlarged, the conjunctiva was œdematous, the upward and downward movements of the eye were limited, and there was no outward movement. The pupil was normal, the retinal veins were slightly tortuous and dilated, and vision was 5/18. The pulsation was controlled by pressure on the left carotid artery. The left eye was not proptosed, but movements upwards and downwards were limited. The pupil was dilated, the disc was pale, and vision was 5/24. A loud bruit was heard over the right eye and temporal region. On Oct. 10th Dr. Skirving tied the left internal carotid artery. A month later there was marked subsidence of the proptosis, the conjunctival vessels were slightly dilated, movements upwards and downwards were normal, but there was no power over the external rectus. The headache was much better but he could still hear a whirring noise in the head, which, however, was not nearly so loud as it had been. No bruit could be heard and no pulsation felt. Vision was about the same, and there were no definite changes in the fundus. Dr. Maher gives the following explanation of the control of the pulsating exophthalmos by pressure on the carotid of the opposite side. In the first case the enucleation of the right eye caused a clot to form in the anterior part of the right arterio-venous aneurysm. The pressure from the right internal carotid artery then caused the circular sinus, which connects the two cavernous sinuses, to dilate, and through it the pressure from the right internal carotid was conveyed to the left cavernous sinus, producing pulsating exophthalmos in the left eye. In the second case a clot formed in the anterior part of the left arterio-venous aneurysm, resulting in spontaneous cure of the left pulsating exophthalmos, the circular sinus became dilated, and the pressure from the left internal carotid artery was conveyed to the right cavernous sinus, causing right pulsating exophthalmos.

MEDICAL EDUCATION IN AMERICA.

BOTH in the United States and in Canada severe criticism has been directed recently at the methods in vogue for training medical students. In his presidential address, delivered before the Academy of Medicine of Toronto, Dr. Herbert J. Hamilton expressed himself as by no means in favour of the German system of clinical instruction by whole-time professors who did no private practice. He considered that such teaching could not properly equip the student for his work as a general practitioner, which after all was to be the vocation of a large majority of the medical profession. On the other hand, at the annual dinner of the New York Post-Graduate Medical School a few weeks ago Dr. William Welch expressed the opinion that there would always be opportunities for the practising physician to give part of his time to medical school work in order that students should have the benefit of the peculiar experience. But,

in his opinion, the direction of such an institution should always be in the hands of one not engaged in practice. There should be men who made teaching and training of students their life work. The head of a medical school should have a staff of paid and well-trained assistants and associates. Dr. Welch pointed out that the roots of research are embedded in medical education, so that research work should be the function of hospitals and medical schools. The large endowments in the interest of medical science made in the United States during recent years had been mostly on behalf of large and independent medical institutions engaged solely in research work. It was, he thought, a narrow course to endow research work and not to endow medical education in which research work is rooted, a view that is gaining ground rapidly in this country.

THE LOCAL GOVERNMENT BOARD AND SCIENTIFIC RESEARCH.

THE President of the Local Government Board has authorised the following special researches to be paid for out of the annual grant in aid of scientific investigations concerning the causes and processes of disease: (1) An investigation by Dr. Eardley Holland into the causes of stillbirths; (2) a continuation of the Board's inquiry into the cellular contents of milk by Professor G. Sims Woodhead; (3) a continuation of the Board's inquiry into the causes of premature arterial degeneration by Professor F. W. Andrewes; (4) an investigation by Dr. M. H. Gordon and Dr. A. E. Gow into the etiology of epidemic diarrhœa in children. Announcement of further investigations will be made at a later date.

EPIDEMIC JAUNDICE AMONG SCHOOL CHILDREN.

IN the March number of *Public Health* Dr. Cameron R. Gibson has drawn attention to five epidemics of jaundice occurring in different parts of Cheshire during the last three or four years, and principally affecting school children. Each of these epidemics has been limited to a few square miles of open country, or to a village, or, in the case of Northwich, to a single street in a small town. The number of cases in these epidemics was respectively 37, 13, 24, 4, and 28, and Dr. Gibson finds evidence that similar small outbreaks have occurred elsewhere in the same county. The affection seems to have been of the nature of "catarrhal jaundice" of a mild type, in most instances hardly enough to necessitate the child lying in bed; the duration of the illness varied from under one week to five weeks, relapses were rare, and none of the cases were fatal. The attacks in each instance were usually spread over two or more months, the interval between cases being in some instances as short as three or four days, in others a month or more. Dr. Gibson has made a useful collection of 40 recorded epidemics of jaundice in the United Kingdom, and notes that they are divisible into two classes. In the greater number, 34, the circumstances were similar to the Cheshire series, as the incidence was almost entirely on children of school age, with only an occasional adult attacked, and the size of the epidemic was small. In the second form, of which, however, there are only four or five examples among the 40 epidemics, the numbers affected have been larger and the age-incidence entirely different, adults, especially between the ages of 30 and 40, being principally attacked. While admitting that the nature and causation of these outbreaks are obscure, Dr. Gibson claims that they have at least been shown to be due to an infective process (for which on analogy a protozoal infection may be suspected to be responsible), in which the infection is transmitted directly by personal contact. Looking to the very restricted distribution of the cases in Cheshire to which he draws attention, however, it seems not impossible that detailed inquiry into such outbreaks might result in the discovery of some common factor of infection—for example, in the dietary—as yet unsuspected. For the present, perhaps, epidemic jaundice may be classed with poliomyelitis, cerebro-spinal fever, and other diseases in this country which, epidemiologically, are characterised by their apparently fortuitous appearances and their very limited infecting power. The occurrence of jaundice, both in epidemics and sporadically, among school children seems to deserve the attention of school medical officers generally, and possibly a collective investigation of the subject would produce valuable results.

THE EPIDEMIOLOGY OF ACUTE ANTERIOR POLIOMYELITIS.

THE whole civilised world suffers from epidemics of infantile paralysis, to give its old-fashioned name to acute anterior poliomyelitis. The epidemics are highly fatal as well as crippling visitations, and both urban and rural communities in all countries are directly interested in their suppression. A great deal of study has been devoted to the disease, particularly in Scandinavian, German, and American laboratories, and we now know a great deal about the minute organism to which it is due. We also know various methods by which the disease can be transmitted from one animal to another in the laboratory, and we have some slight acquaintance with the frequency with which healthy persons may be carriers of the infecting organism. Valuable studies of the epidemiology of the disease have been made, in Scandinavia and Germany particularly, but many important points remain unexplained. A bulletin[1] recently issued by the Public Health Service of the United States gives an excellent summary of what we know about the occurrence and spread of these epidemics, and, in addition, presents a mass of information derived from the careful study of three recent American epidemics of infantile paralysis. In 1910 an epidemic of 70 cases occurred in Iowa; there were 99 cases in and around Cincinnati in 1911; and in 1912 there were 320 cases in Buffalo and Batavia. The author has worked up his material with thoroughness and skill, and draws from it a number of conclusions. Many of these conclusions are negative in character, but not less valuable for that. No connexion could be traced between race or nationality and the occurrence of the disease; study of the topographical features of the affected areas yielded no result; there was no evidence to indicate that the infection was spread by either water, food, domestic animals or pets, biting flies (particularly the stable fly, Stomoxys calcitrans) or insects, or, finally, dust. As for his positive deductions, the author gives reasons for believing that poliomyelitis

[1] Epidemiologic Studies of Acute Anterior Poliomyelitis, by Wade H. Frost. Hygienic Laboratory, Bulletin No. 90, Treasury Department, U.S. Public Service. 8vo, pp. 258, with maps and charts. Government Printing Office, Washington, 1913.

is a contagious disease spread from person to person through interchange of infectious secretions, the sources of infection being the clinically definite and clinically indefinite acute cases, convalescents, and passive human carriers infected or, as he prefers to put it, infested with the specific virus. A definite seasonal prevalence is shown, late summer and early autumn being the times of election in the northern United States. In some instances the epidemic has remained localised, as if it were a "place infection" unable to travel along freely used lines of communication. But in others a rapid spread over wide areas has been a characteristic feature, as if man, the most rapidly and widely travelling animal, had been the carrier of infection. A small total incidence in the population affected is commonly seen, as though the susceptible material in the population were fairly soon exhausted; the epidemics in small towns and in the country are the more intense, as if the proportion of susceptible persons in these areas were greater than it is in the large towns. Whether this is true for the sporadic cases also is unproven. A striking feature of poliomyelitis is the severity with which it attacks American children; children under 5 years of age constitute from 9 to 12 per cent. of the population, yet account for from 50 to 90 per cent. of the cases of poliomyelitis; out of 281 cases in the Buffalo epidemic of 1912, 212 were under 5 years of age, and not one was over 24. The fact can be explained only by assuming that children are more susceptible to the infection than older persons. Males are more often attacked than females, at all ages, for what reason remains obscure. The contagiousness of the disease seems to be very slight; the author found that out of 2070 persons exposed to poliomyelitis by residence in the same houses and in the same families as poliomyelitic patients, only 14 developed the disease. A very interesting conclusion to which the author comes is this, that adults must have acquired a specific immunity to poliomyelitis by means of a previous but unrecognised infection with its virus. He can find no other explanation of the fact that the infective agent is widespread during epidemics and reaches a large proportion of the population, but only occasionally finds a susceptible individual, usually a child, in whom it can produce its characteristic morbid effects. Cases without paralysis are believed to be commoner than paralytic cases during epidemics, and many people who are and remain perfectly well harbour the virus; the virus must be regarded as endemic in America, for sporadic cases are of perennial occurrence. This unrecognised immunisation of a population was admirably illustrated in Sweden, for the Swedish epidemic of 1911 spared the hamlets and villages chiefly affected in the epidemic of 1905, but attacked most severely the localities immediately contiguous. The fact that adults are less often attacked in urban than in rural communities suggests that residents in towns have had the better opportunities for acquiring this supposed unrecognised immunity during early life. It may be hard to believe that poliomyelitis could go so often unrecognised, but fairly close analogies in support of this hypothesis may be drawn from epidemiological studies of typhus, pellagra, uncinariasis, yellow fever, and measles.

ANOTHER candidate for the Council of the Royal College of Surgeons of England is announced in the person of Mr. F. J. Steward, surgeon to Guy's Hospital, and for a considerable period surgeon also to the Hospital for Sick Children, Great Ormond-street. Mr. Steward is known to his colleagues as an excellent committee man, and must be considered a strong candidate. His appearance in the field makes the candidates already 11 in number for four vacancies. Mr. Ballance, as we have already announced, will offer himself for re-election.

A DEPUTATION arranged by the British Medical Association and the Society of Medical Officers of Health to press for security of tenure and for superannuation for medical officers of health, was to have been received on Tuesday last at the House of Commons by the President of the Local Government Board, the Chancellor of the Exchequer, and the Minister for Education. Owing, however, to the illness of Mr. Lloyd George the reception of this deputation has been postponed.

THE house of the Royal Society of Medicine, 1, Wimpole-street, London, W., will be closed for the Easter holidays from Thursday, April 9th, to Tuesday, April 14th, both days inclusive.

Lieutenant-General Sir James Grierson, K.C.B., C.V.O., C.M.G., will present the prizes at the Royal Army Medical College, Grosvenor-road, S.W., on the conclusion of the 107th session, on May 1st.

Dr. Arthur Edwin Horn has been appointed a member of the executive council and an official member of the legislative council of the colony of the Gambia.

LITERARY INTELLIGENCE.—Queen Alexandra has accepted a copy of Dr. C. W. Hutt's work, "Hygiene for Health Visitors, School Nurses, and Social Workers," recently published by Messrs. P. S. King and Son.—"How to Breathe, Speak, and Sing," by Robert Stephenson, B.A., is a work covering the common ground of speech and song, and is announced for immediate publication by Messrs. Jarrold and Sons.

GLOUCESTERSHIRE ROYAL INFIRMARY.—The annual meeting of the governors of the Gloucestershire Royal Infirmary was held on March 26th, under the presidency of Colonel Curtis Hayward. The medical report stated that during 1913 the in-patients numbered 1520, an increase compared with 1912. The out-patients were 1600 less than in the previous year, probably due to the working of the National Insurance Act. The financial statement showed a falling off in the ordinary income of £375, but nearly £4000 had been received from two legacies.

BRITISH OTO-LARYNGOLOGICAL SOCIETY.—The first dinner of this society, at which about 50 Fellows and guests were present, was held at the Trocadéro Restaurant, London, on March 18th, Mr. Charles Heath being in the chair. In proposing the toast of the society the chairman gave a brief history of its formation and aims, and pointed out that its rapid growth proved that the opportunities which it afforded were fully appreciated. Dr. Frederick Spicer, another of the founders, replied to the toast in an interesting and vigorous speech. Dr. J. Coubro Potter proposed the toast of the guests, to which Dr. William Ettles, President of the Hunterian Society, replied in complimentary and humorous terms. A vote of thanks to the secretary, Dr. J. Walker Wood, for his work during the past year and management of the dinner and musical entertainment, was proposed by Mr. A. Adair Dighton. Dr. Wood replied. Dr. C. A. B. Horsford proposed a vote of thanks to the chairman and Mr. Heath briefly returned thanks.

THE MODERN GAS FIRE AND HYGIENIC EFFICIENCY.

IN THE LANCET of Feb. 7th, 1914, two new methods in regard to testing the hygienic efficiency of gas fires were described. The term "gas fires" is exclusive to those stoves which aim at supplying the energy of the combustion of coal gas in the form of radiant heat. In this article it was stated that in a preliminary trial of these tests with some of the gas fires upon the market gratifying evidence was obtained that the makers of gas fires were steadily working towards a sound hygienic standard. Further experiments have confirmed this statement, and, in accordance with a promise given in the article referred to, we now present the results of some experiments which have since been made with a number of gas fires representing chiefly the types being offered to the public at the present time.

THE SHADOWGRAPH TEST AND "THE LANCET" CHEMICAL TEST.

We may briefly repeat a description of the tests referred to. The shadowgraph test depends upon the fact that water is the principal product of combustion of coal gas. It is clear that if it can be demonstrated that water vapour from a gas fire is issuing into the room instead of flowing up the chimney a defect of hygienic importance is disclosed comparable with the escape of smoke from the ordinary fireplace. Everyone knows the effect of bringing a tumbler of cold water into a moist warm air. The moisture is deposited upon the glass. This is the principle of the shadowgraph method of testing gas fires. A piece of plate glass called the detector plate is carefully cooled in an ice bath to such a point that its temperature is slightly above the dew point of the room in which the fire is being tested. The plate is not cooled sufficiently to precipitate moisture from the normal air, but when it comes into contact with hot air surcharged with moisture an abundant deposit takes place. Brought near to the canopy of a gas fire which permits products of combustion to escape freely, a deposit of moisture instantly takes place which is readily visible to the eye, but the test is made more obvious, and a record can be made, by means of a beam of light projected through the plate, when if the stove is "by-passing" water vapour from beneath its canopy into the room a darkening as though smoke was escaping from the stove is seen upon the screen.

In the chemical test which was devised in THE LANCET laboratory an absorbent pencil such as chalk is soaked in carbon tetrachloride and placed near the air inlet of the gas fire. Traces of carbon tetrachloride are thus drawn into the burners, with the result that on combustion hydrochloric acid is produced which, although present in small proportion, is readily detected by coming into contact with ammonia, forming dense fumes of ammonium chloride. If, therefore, the products of combustion are "by-passing" this will instantly be shown by fumes being produced when an open tube containing strong ammonia solution, or a sponge soaked in the solution is placed at various points along the rim of the canopy.[1]

[1] The test has received a cordial endorsement from the Journal of Gas Lighting and Water Supply. In its issue of Feb. 17th, 1914, an article appeared in this journal in which is recorded an independent experience of the test. The article concludes with the flattering words which we reproduce with much gratification: "We hope THE LANCET will permit us to congratulate its laboratory staff on having devised this simple and valuable test for the sufficiency of gas-fire ventilation. Its application will undoubtedly in the long run be of great service to the gas industry, though it is likely, in the first instance, to lead to the scrapping of some gas-fires of obsolete and unhygienic types which might otherwise have continued in use for some years to come. But the good repute of gas for domestic heating will become yet more firmly established as soon as these fires are replaced by others conforming with the present hygienic standard. ..... We are glad to take this opportunity of expressing our hearty appreciation of the value of the test for gas-fires which it has now presented to the public."

THE APPLICATION OF THE TESTS.

The fires were submitted to both the shadowgraph and the chemical test and the results under each stove are recorded in parallel columns. Practically speaking, there was found to be a substantial agreement between the two sets of results, as will be seen from an inspection of the accompanying tables. In these tables the rim of the canopy of the stove is represented by a curve or straight line according to its design. There were five points at equal distances tested along this rim. The sign + indicates leakage and the sign O no leakage of combustion products. The number of signs furnishes a relative indication of the extent of leakage. Thus, ++++ means very free or excessive leakage, +++ means moderate leakage, ++ distinct leakage but slight, and + a trace (sometimes only occasional) of products of combustion escaping. In every case the tests were begun after the fire had been alight for 30 minutes, as it is obvious that the conditions necessary for the ventilation of the products through the proper outlets can only be assured when the radiating material and stove are thoroughly hot. There can be little doubt that the gas fire presents a similar difficulty to that which is experienced with the coal fire during lighting up. Until the wood is well alight there is frequently no draught established up the chimney, and the expedient of burning a large piece of paper during the lighting of the coal fire in order to establish a draught and prevent the escape of smoke into the room is well known. The fires were tested in the middle of the experimental room without any communication with the fireplace chimney. The supply of gas was kept under control so as to avoid placing an unfair demand upon the capacity of the stove under observation. All precautions were, in fact, taken to test the stoves under conditions approved by those whose business it is to instal them.

ELBOWS AND FLUES.

It will be observed in the table that the stoves were tested under four conditions: first, when there was no attachment of "elbow" to the flue nozzle of the stove; second, when there was an elbow attached; third, when a 2-feet sheet iron flue was attached to the elbow; and fourth, when a 4-feet sheet iron flue was attached to the elbow. An interesting differentiation was thus obtained, for if the results be carefully examined it will be found that some stoves did not require the attachment of flues at all for help in the matter of ventilation or "pull," while others failed to ventilate satisfactorily, even when a 4-feet flue was attached. This serves to demonstrate how helpful these tests promise to be in guiding the manufacturer to design his stove so that when tested it may show negative results as regards the escape of combustion products into the room. The order in which the stoves are placed in the table merely represents that in which they happened to be taken for testing purposes.

The following are our observations as to the

behaviour of each fire when submitted to the tests described; altogether 28 were examined.

Gas Fire No. 1, "No. 57" (ball fuel) (Davis Gas Stove Co.).—This fire gave consistently bad results. There was no relief from the escape of combustion products until a 4-feet flue was attached, and even then there was still some leakage. This is a somewhat old type of stove which is being discarded in favour of new designs by the same firm, examples of which are given further on. This firm introduced the "shadowgraph" test, and their recent patterns of gas fires satisfy this test without any flue assistance.

Gas Fire No. 2, RENAISSANCE (Richmond Gas Stove Co.).—This fire is admirable in design, and as will be seen does not show the slightest sign of leakage of combustion products according to both the shadowgraph and chemical tests, whether it was or was not fitted with a flue or elbow.

Gas Fire No. 3, STADIUM (John Wright and Co.).—This stove showed leakage of combustion products until a 2-feet length of flue was attached, the leakage then being very slight at the sides according to the chemical test, but not according to the shadowgraph test. Both tests, however, showed completely negative results when a 4-feet length of flue was attached. A more recent type of stove by the same makers gave quite negative results without aid from any flue or elbow (see Gas Fire No. 25).

Gas Fire No 4, VESTA (Davis Gas Stove Co.).—This fire gave practically negative results all through. There was, however, a slight intermittent leakage when it was tested without any attachment, but as the results show, hygienic efficiency was completely established when only an elbow was attached. It did not require a flue length.

Gas Fire No. 5, MASCOT (John Wright and Co.).—This fire showed profuse leakage of combustion products until a 4-feet length of flue was attached. The chemical test, it will be seen, showed greater delicacy in this experiment than the shadowgraph test.

Gas Fire No. 6, APOLLO (Davis Gas Stove Co.).—This fire gave satisfactory results. The chemical test showed a slight intermittent leakage when there was no aided outlet, possibly due to a slight back draught. With simply an elbow, however, there was no leakage at all.

Gas Fire No. 7, D.S.O. (new) (R. and A. Main, Ltd.).—This fire gave excellent results, there being absolutely no leakage with elbow attached.

Gas Fire No. 8, PANSY (Cannon Iron Foundries, Ltd.).—This fire gave similar results to the last; there was no sign of forward leakage after an elbow was connected.

Gas Fire No. 9, JERSEY (Fletcher, Russell, and Co.).—This fire leaked badly without attachment, as shown by both the chemical and shadowgraph tests; but when the length of flue was 4 feet there was no escape of combustion products.

Gas Fire No. 10, ROSE (Cannon Iron Foundries, Ltd.).—This fire gave admirable results in every way. There was no sign of leakage even without an elbow attached.

Gas Fire No. 11, BAVARIAN (Richmond Gas Stove Co.).—This fire showed small leakage without the elbow attachment, but when a 2-feet length of flue was attached there was no escape at all.

Gas Fire No. 12, CARLTON (Wilsons and Mathiesons, Ltd.).—The complete ventilation of gaseous products of combustion was not effected in this fire until a 4-feet flue was attached. The same firm, however, as will be seen further on, have a fire upon the market (the Solar) evidently of an improved type, which shows practically no leakage even without an elbow attachment.

Gas Fire No. 13, "No. 15" (old) (Davis Gas Stove Co.).—This is a type of stove now being discarded, for the excellent reason that its construction obviously permits the escape of combustion products even when a 4-feet length of flue was attached.

Gas Fire No. 14, "No. 15" (new) (Davis Gas Stove Co.).—This is the fire which has taken the place of the previous one, and, as will be seen, works entirely differently and in satisfactory hygienic direction. There was no leakage at all of combustion products when an elbow was attached.

Gas Fire No. 15, PALERMO (Fletcher, Russell, and Co.).—This fire showed abundant leakage when tested without an elbow attachment. There was no improvement with the elbow, but when a 2-feet length of flue was attached the escape was very decidedly reduced, while with a 4-feet flue there was no escape at all.

Gas Fire No. 16, PATHAN (Parkinson Stove Co., Ltd.).—This fire showed no serious leakage even without the elbow, and with it the ventilation of the combustion was established. With a 2-feet length of flue there was no sign of leakage.

Gas Fire No. 17, WELSBACH RADIATOR (Welsbach Light Co.).—This fire showed negative results as regards the escape of combustion products. They passed completely out of the flue nozzle even without an elbow attached.

Gas Fire No. 18, RATCLIFF (Parkinson Stove Co., Ltd.)—This fire is evidently constructed on right lines so far as hygienic efficiency is concerned. It showed a trifling leakage when the work of ventilation was entrusted to the flue nozzle, but on connecting the elbow there was no by-passing of combustion products at all.

Gas Fire No. 19, ONYX (Parkinson Stove Co., Ltd.)—This fire is by the same makers as the previous one, but is of different design, the rim of the canopy being in a straight line. There was slight leakage with the elbow attached, but on adding to this a 2-feet length of flue the products of combustion escaped completely through the proper channel. When an elbow of a different shape was attached there was no leakage even without a 2-feet flue.

Gas Fire No. 20, SHERATON (Wilsons and Mathiesons, Ltd.).—This fire showed considerable escape of combustion products in front of the canopy until an elbow was attached and a 4-feet flue.

Gas Fire No. 21, BORNEO (Fletcher, Russell, and Co.).—This fire leaked badly with the elbow attached, but showed some improvement when a 2-feet length of flue was added. Even with a 4-feet flue attached there were intermittent escapes of combustion products.

Gas Fire No. 22, MERLIN (John Wright and Co.).—This fire only commenced to show good results when a 2-feet length of flue was attached. Even when a 4-feet flue was attached there were occasional signs of small escape.

Gas Fire No. 23, FLAMBEAU (Richmond Gas Stove Co.).—This fire without an elbow attached to the flue nozzle showed some leakage. There was an improvement when the elbow was supplied, and with the addition of a 2-feet flue there was no leakage at all.

Gas Fire No. 24, D.S.O. (old) (R. and A. Main, Ltd.).—This fire has been improved upon. It bears the same name as No. 7 in the table, which showed practically no serious leakage even without an attachment. No. 24 shows some leakage with an elbow which entirely disappears when a 2-feet length of flue is attached.

Gas Fire No. 25, TALISMAN (John Wright and Co.).—This fire gave negative results as regards the by-passing of products of combustion under all the conditions of testing. Even without an elbow there were no signs of products of combustion escaping forward from beneath the canopy.

Gas Fire No. 26, QUINTIN (Imperial Gas Stove Co.).—This fire showed a bad leakage of combustion products without an elbow, and matters did not improve very much when an elbow was attached. There was an improvement when a 2-feet flue was connected, and there was no by-passing at all when the flue was 4-feet long.

Gas Fire No. 27, QUADRA (Imperial Gas Stove Co.)—With its flue nozzle only as a means of outlet there was decided escape of combustion products from this fire from the canopy into the room. Not until a 2-feet flue was attached did this by-passing cease.

Gas Fire No. 28, SOLAR (Wilsons and Mathiesons, Ltd.).—This fire worked well without any flue provision. There were just traces of combustion products escaping when there was no elbow. These were not shown by the shadowgraph. The moment the elbow was attached the fire worked admirably, the testing showing no trace of escape from beneath the canopy into the room.

Of 28 gas fires examined four gave no evidence of the escape of combustion products when only the flue nozzle was left to do the effluent work; and seven fires, while not working favourably under these severe conditions, did not allow products of combustion to escape when an elbow supplied with the gas fire was attached. Eight fires showed a leakage under these conditions, but they proved to work satisfactorily when an elbow and 2-feet length of flue were attached before the escape of combustion products was stopped, five fires showed no leakage with a 4-feet flue attached, and the remaining four still allowed products of combustion to escape with a 4-feet length of flue attached. It should be said, however, that the escape in many instances was so slight as to be without hygienic significance. The chemical test is a very delicate one.

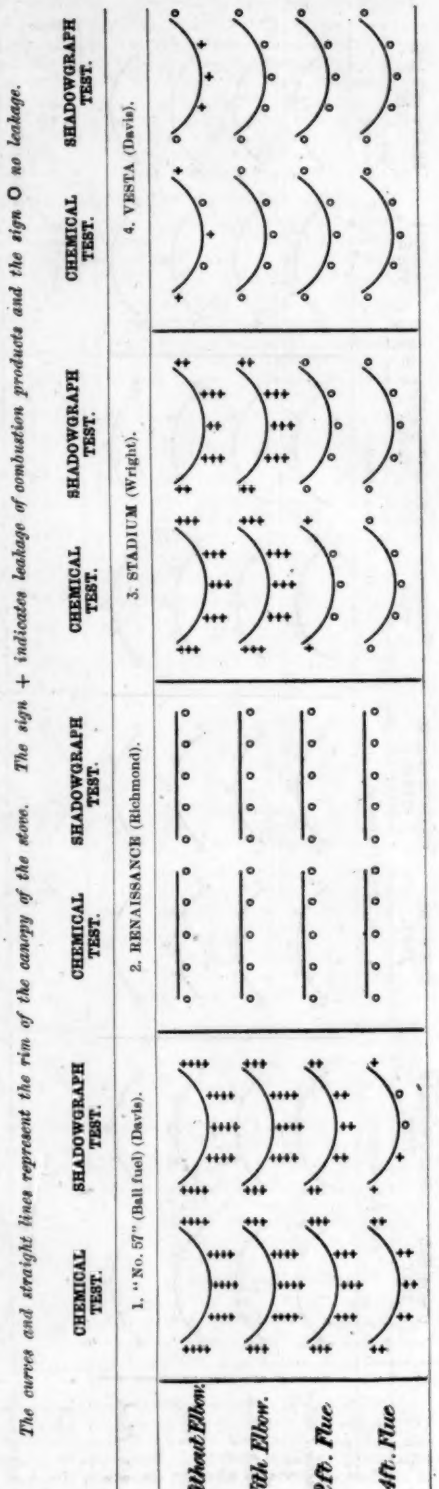
IS HYGIENIC EFFICIENCY OPPOSED TO HEATING EFFICIENCY?

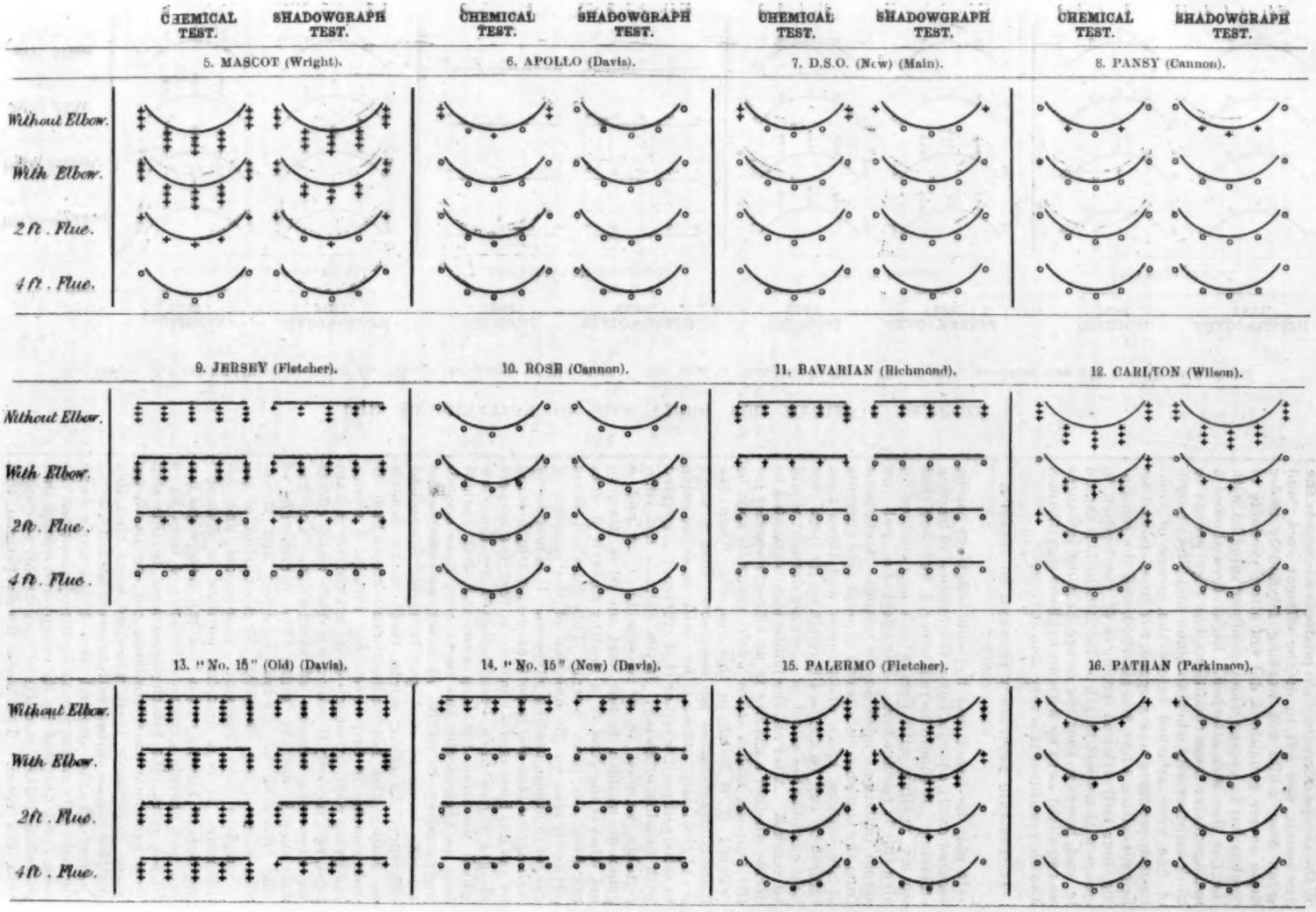
It may be urged that hygienic efficiency can be secured easily enough, but at the expense of heating efficiency. It should be remembered, however, that we are dealing with fires which are claimed to give chiefly radiant heat. The effect of a "pull" on actual radiations need not be serious. Radiations from the sun obviously travel through cold currents of air without much disturbance, and these heat radiations can be focused through an ice lens. On heat currents the effect of a strong draught would be marked. After all, the public may be trusted to decide whether a gas fire is an efficient warmer for the purpose, and a stove would naturally soon be rejected if it failed in this respect. When the householder receives an assurance that a stove is hygienically efficient he will soon be able to satisfy himself whether that efficiency is coupled with heating efficiency. If the room is not comfortably warmed in a reasonable time and a generous warmth is not kept up it is time to ask what is the good of a healthy stove if it does not keep the place warm. This question bears obviously also on the question of the economy of gas for domestic heating purposes. It is now fairly well agreed that one important reason why heating by gas has increased in favour is that the makers of gas stoves have been actuated by the view which we have for long endorsed, that radiant heat is hygienically the best; they have accordingly striven to utilise as much as possible the calorific value of coal gas in terms of radiant efficiency. In other words, their model now is in reality the hot radiant coal fire, which is instrumental in two directions. Firstly, it warms the living room by means of its exclusively radiant heat, and secondly it provides a shaft which effects an important amount of ventilation. The gas fire should do the same. The combustion of coal, however, is always imperfect and therefore wasteful and offensive; the combustion of gas is complete and therefore economical and inoffensive. It is a manifest advance in domestic methods of heating by gas that the modern gas fire can now provide a radiant efficiency of from 50 to 60 per cent. We attach importance to this step from economic considerations; but we attach far more importance to it when we know that this position can be gained with hygienic security.

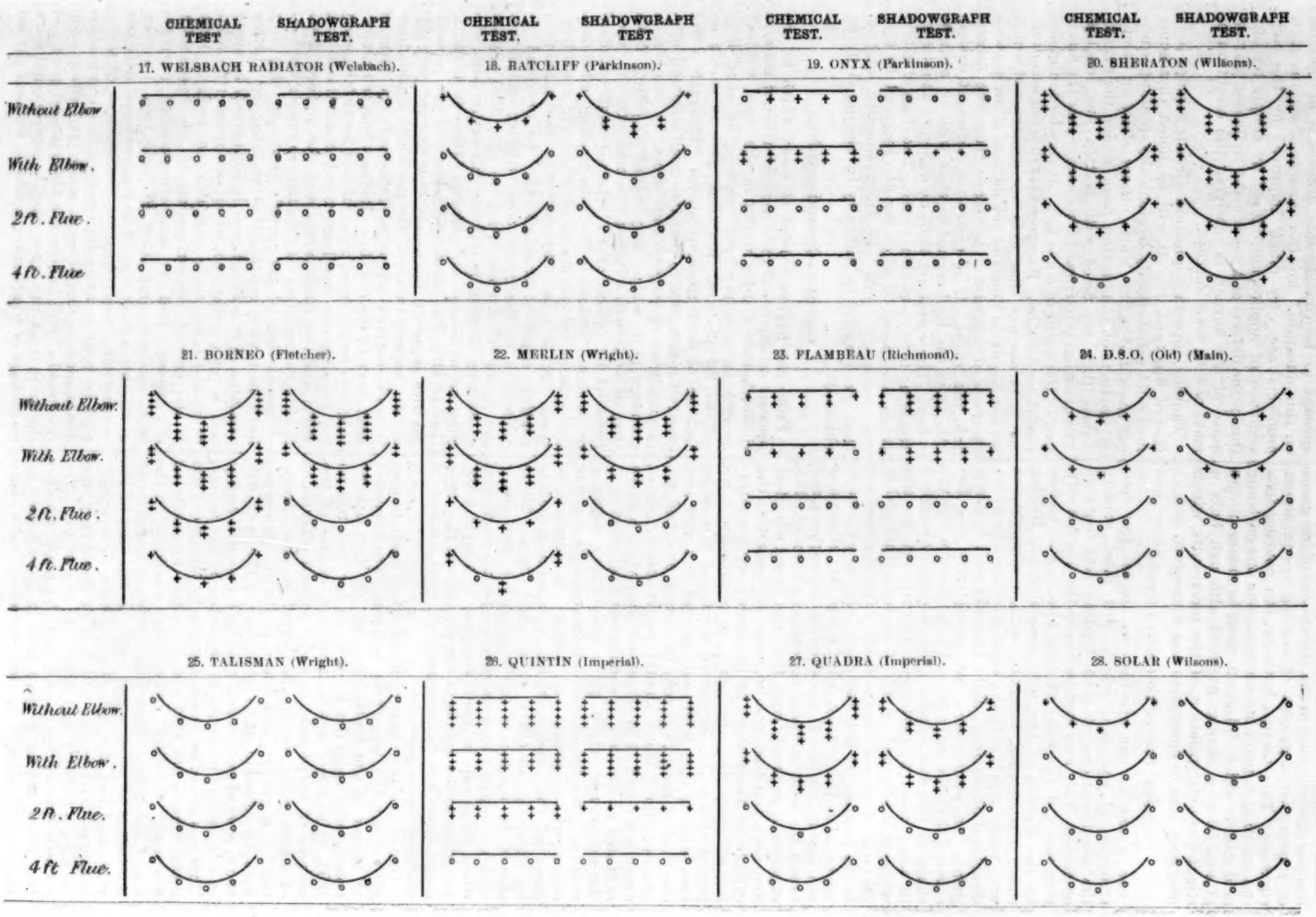
After all, the demand that a gas stove shall furnish only radiant heat implies (except for the heat communicated by its canopy and casing) that it shall not allow products of combustion to escape into the room. The stove which permits this

THE EXAMINATION OF GAS FIRES FOR HYGIENIC DEFECTS.

The curves and straight lines represent the rim of the canopy of the stove. The sign + indicates leakage of combustion products and the sign O no leakage.




CHEMICAL TEST.
SHADOWGRAPH TEST.
5. MASCOT (Wright).
6. APOLLO (Davis).
7. D.S.O. (New) (Main).
8. PANSY (Cannon).
Without Elbow.
With Elbow.
2 ft. Flue.
4 ft. Flue.
9. JERSEY (Fletcher).
10. ROSE (Cannon).
11. BAVARIAN (Richmond).
12. CARLTON (Wilson).
Without Elbow.
With Elbow.
2ft. Flue.
4 ft. Flue.
13. "No. 15" (Old) (Davis).
14. "No. 15" (New) (Davis).
15. PALERMO (Fletcher).
16. PATHAN (Parkinson).
Without Elbow.
With Elbow.
2ft. Flue.
4 ft. Flue.


CHEMICAL TEST
SHADOWGRAPH TEST.
CHEMICAL TEST.
SHADOWGRAPH TEST
CHEMICAL TEST.
SHADOWGRAPH TEST.
CHEMICAL TEST.
SHADOWGRAPH TEST.
17. WELSBACH RADIATOR (Welsbach).
18. RATCLIFF (Parkinson).
19. ONYX (Parkinson).
20. SHERATON (Wilsons).
Without Elbow
With Elbow.
2ft. Flue.
4ft. Flue
21. BORNEO (Fletcher).
22. MERLIN (Wright).
23. FLAMBEAU (Richmond).
24. D.S.O. (Old) (Main).
Without Elbow.
With Elbow.
2ft. Flue.
4ft. Flue.
25. TALISMAN (Wright).
26. QUINTIN (Imperial).
27. QUADRA (Imperial).
28. SOLAR (Wilsons).
Without Elbow.
With Elbow.
2ft. Flue.
4ft Flue.

leakage will, of course, show a higher general heating efficiency due to the circulation of hot gases of combustion, a process of heating by convection currents. This means, however, the pouring into the dwelling room of hot water vapour and carbonic acid gas, to which objection must be taken on the ground that a strong physical although only a slight chemical vitiation of the air results, which may soon lead to oppression and discomfort.

SOME POINTS IN CONSTRUCTION.

It is not in our province to discuss the construction of gas fires which will meet equally the considerations of both heating and hygienic efficiency. This may well be left to the gas-fire constructor, with the help afforded him in this matter by the lessons of the new simple tests. During these experiments, however, certain observations were made which indicate some directions in which structural alterations might be made with hygienic gains. In some cases, for example, it was discovered that the only defect in the gas fire was the shape of the flue nozzle. The flue elbow supplied in some cases was elliptical in shape at the end where it is attached to the stove, but cylindrical at its exit. This elbow occasionally offered resistance to the passage of the flue gases, and so an escape appeared at the canopy. But when this elbow was replaced by one which was elliptical throughout, end to end, the tests indicated no leakage whatever. The experience generally was that the broad elliptical flue gave the best results, whereas invariably the cylindrical flue seemed to be inadequate for carrying off completely the gases of combustion. We regard this as an important point, and it must be remembered that while one shaped flue will suit one kind of gas-fire it may be utterly unsuited for another type. There should be no mixing up of flue elbows, and it is important that when a stove is placed in position it should have attached to it the flue elbow which gives satisfactory working results. In some cases there was supplied a flue elbow which caused a leakage of combustion gases at the canopy, which was soon remedied by attaching an elbow of another shape. There should be no excuse for supplying a flue elbow which is opposed to satisfactory working conditions when these can be readily shown by simple tests. Attention to the details of construction of the stove itself must not be accompanied with neglect of such points.

One of the most important advances made in gas-fire construction was when "ball fuel" was discarded in favour of the radiating tube. In THE LANCET Commission upon the subject, so far back now as 1893, this defect was pointed out as one of the sources of incomplete combustion and oftentimes of disagreeable smells. Nevertheless, the "dressing" of a gas fire still needs attention. Some gas fires, for example, as an inspection of the table will show, worked satisfactorily except for a small escape of combustion products at the sides of the canopy. This was remedied in some cases by taking out the distal tubes each side and in others by removing the cross "dressing" (where that was used) on the top of the tubes. According to this it would be an advantage to leave a gap between the side of the stove and the last radiating tubes, and to modify the cross top dressing which is probably only used to give a finished appearance to the stove. The construction of the canopy and the point whether the tubes should project into it, or whether an open space should be left between, have been freely discussed by the gas fire industry, and there appears to be considerable difference of opinion on this question. But the chances of solving such problems are very much improved by the convenience of application offered by simple testing. One of the defects of a gas fire, the irritating purring noise of the burner, is receiving the attention of makers with some success.

Another important question already alluded to is that of flue capacity. It will be noted that some fires work satisfactorily, hygienically speaking, without the aid of a flue, while others allow an escape of products of combustion from under the canopy unless they are fitted with certain flue lengths. The question is narrowed if we accept that the flue is part of the outfit of a gas fire. It may be contended that it need not be. We agree that it is not essential, for it is obvious that fires are constructed which do not require a flue, and yet do not allow gaseous products of combustion to escape from the canopy into the room. It is entirely a matter of design. The stove can be designed to work with or without a flue. There appears to be no difficulty about constructing it to meet either case. The limit of safety is reached, possibly, when the flue required to give the necessary "pull" is inconveniently long so that there would be difficulty in placing it in the chimney.

GENERAL CONSIDERATIONS.

From the hygienic point of view, which in the present article is our only consideration, it matters little whether a stove works in the open without or with an auxiliary "pull" so long as when it is set in its place of practical duty it shows no leakage of combustion products. Although a fire may fail unattached to ventilate itself automatically, it may work perfectly well when it receives a chimney pull which may equal anything from that of a 6-feet to a 16-feet flue pipe. On the other hand, if by reason of an attained high standard of hygienic efficiency it loses heating efficiency, the system breaks down on economic considerations. It is quite obvious that the maximum heating effect of coal gas can be obtained by burning it in the open room with no outlet for the products of combustion at all. The process of heating is then purely by convection—the circulation of heated air currents; there is no radiation at all. The attractive feature of the modern gas fire is, as we have said, that 50 to 60 per cent. of the heating value of the gas which it consumes is made radiant, which is exclusively the form of heat given by the coal fire. Radiant heat is acknowledged to be the most cheerful and heathful agency for keeping our dwelling rooms comfortable and warm, and the modern object of the makers of gas fires is (in our view very rightly) to render the heat of combustion of gas in this form. In this they have met with considerable success, and further advances in this direction will most likely be made, and a yet greater proportion of the calorific value of coal gas be made available as radiant heat. If the correct consummation of the application of gaseous fuel to domestic heating purposes is a maximum radiating efficiency, the question of whether a stove should be required automatically to ventilate itself without the services of a flue pipe to convey away the products of combustion diminishes in importance, since the effect of a reasonable "pull" short of a blast is negligible. At the same time, the view that a stove should show no leakage of combustion products without the aid

of a flue should not be discouraged, for it discloses a keen regard for hygienic conditions.

THE QUESTION OF A STANDARD.

As the result of our experiments we are inclined to express doubt whether a stove should be accepted for service which on testing shows a leakage of combustion products when a flue has to be attached, exceeding 4 feet in length. It will be observed in the table that certain of the fires showed marked leakage even when a 4-feet flue was attached. In our opinion these stoves fail to pass a desirable standard of hygienic efficiency. They cannot be compared, at any rate, with others in the list which gave absolutely blank results without a flue at all. It is fair to add that certain of the stoves which showed leakage under the extreme conditions laid down were not the very latest types, and we know that these are rapidly being replaced by improved designs which completely satisfy THE LANCET test.

There are, of course, gas fires upon the market which have escaped our notice, but we believe we have included the majority of those now being supplied to the public. Any omissions we may have made we shall be glad to repair in a subsequent article if the makers will communicate with us, and we are willing to submit to test any new designs which are claimed to be an advance on existing types.

We believe the movement to bring gas methods of domestic heating into acceptance from both a hygienic and economical point of view is of considerable importance in the public interest, and we therefore support it. Gas stove makers can study the tests for themselves and model the construction of gas fires so as to pass certain requirements. If this is consistently done, and acted upon, no reproach against the radiant system of gas heating will remain.

We conclude that the final appeal in this matter must be to the chimney and fireplace when the gas fire is placed there for practical duty, and the tests can just as easily be conducted in the house as in the factory. In our opinion, a logical standard of hygienic efficiency cannot be set up without reference to the considerations we have brought forward. The present attitude of the gas fire industry towards all questions of improvement is a most satisfactory one, and our inquiry shows that we may fairly expect in the near future an encouraging and hopeful issue.

MEDICINE AND THE LAW.

Two Unusual Compensation Cases.

AT the Court of Session in Edinburgh recently there were heard two unusual compensation cases. The first referred to the risks to one-eyed miners, and was an appeal case in an arbitration under the Workmen's Compensation Act between a miner and his employers. The workman applied at the sheriff court at Dumbarton to have the employers found liable to him in compensation at the rate of 17*s.* a week from Sept. 19th, 1913, and the sheriff dismissed the application. In April, 1913, the miner was working at the pit-face when a chip of coal flying from the stroke of his pick struck him on the left eye and injured it. As the result of the accident he lost the sight of the eye. The employers paid him compensation until Sept. 12th, and they then ceased payment on the ground that he was able to resume his former occupation and earn his former wage. He maintained that he was incapable of working at the face by reason of the loss of sight to his left eye, and that in any event the risk to a one-eyed man involved such danger as to entitle him to refuse to resume it. The sheriff-substitute found it proved that the risk was not increased by the fact that the miner had lost the sight of one eye. He also found that on Sept. 12th the man was able to resume his occupation and earn his former wage. The workman appealed to the division. The division held that the sheriff's decision was right and the appellant was found liable in expenses. The Lord President said that he was of opinion that the arbitrator was right, upon the ground that the appellant's incapacity due to the injury which resulted from the accident had ceased and that his wage-earning capacity was fully unimpaired, and he could not see how the arbitrator could have pronounced any other finding than he did. If the chance of a chip coming from the pick and injuring the man's eye was not increased in the future by the result of the injuries which he sustained on April 24th, 1913—if such an accident should occur the results would be serious, total loss of sight—that did not render the employment an unsuitable one. To say otherwise would be equivalent to asserting that for a one-eyed man employment at the working face was always unsuitable, and, at all events, there was no finding to that effect here. In short, if an accident did occur in future, the consequences of which were total blindness to this man, that would be attributable to the second accident, and there would be no cause or relation between these consequences and the first accident that took place. To take into account now the chance that an accident might befall him in the future, with all its attendant consequences, would be in effect to find that his present employers were liable to pay compensation to him for an accident which might never take place, and for the consequences of which, if it did take place, someone else would require to pay him full compensation. Lord Johnston held that the possible result of a second accident to a man who already had lost an eye was a relevant subject for consideration by the sheriff, and if his lordship had been sitting alone he would have decided that the sheriff had given himself a defective direction, because he had not taken that matter into consideration. In respect, however, that his lordship in the chair had supported his judgment with cogent reasons, and knowing that Lord Guthrie concurred with the Lord President, he had not sufficient confidence in his own opinion to justify him stating a direct dissent to the proposed judgment. The questions arising out of the loss of one eye by a workman have often been before the courts. The question of the man's earning capacity is one of fact, and the Court of Session, Scotland, refused to disturb a finding in favour of the workman's contention in the case of Arnott *v.* Fife Coal Company, Limited, in 1912. The fear of the workman that a second accident might make him totally blind was an element in the case of Cox *v.* Braithwaite, which was before the Court of Appeal, England, also in 1912. In that case also the workman's apprehension was disregarded.

The second case was a demand that compensation should be paid for advancing obesity. Here, also, judgment was given on appeal in an arbitration under the Workmen's Compensation Act. A miner claimed compensation from his employers in

respect of having while in their employment been accidentally crushed in a fall of coal in one of their pits on Oct. 7th, 1910. The employers paid compensation down to July 11th, 1913, when they ceased payment on the ground that the workman had completely recovered from the effects of the accident, and they asked the arbiter to end the compensation. On the motion of both parties, a remit was made to a medical man to examine the workman and to report as to whether he had completely recovered from the effects of the accident. The medical man reported that the workman had recovered from the direct effects of the injury, but not from the indirect. The injury, it was stated, having thrown the man out of work for a time, his age—63 years—coupled with a tendency to obesity, had told against him, so that, from lack of continuity of activity he had become less and less fit for labour of any kind, and was only able for such sedentary employment as that of a watchman. The sheriff-substitute found that the incapacity for work of the man had ceased by Oct. 8th, 1913, and he ended the compensation. The division recalled the interlocutor of the sheriff, and found the appellant entitled to expenses. The case was remitted back to the sheriff court to fix compensation. The Lord President said that it was well settled law that if the indirect results of the accident still remained compensation was still due, and complete capacity had not been restored. The workman had a natural tendency to obesity, which was checked by active work, and the result of forced abstention from active work was to increase his obesity, with the result that when the immediate effect of the accident had come to an end he was unfit to resume his former occupation as a miner working at the face, and was only fit for such sedentary occupations as that of a watchman. No doubt, if the workman had to show that his incapacity to return to his former occupation was the direct and immediate result of the accident which befel him, he would have a very difficult case, but the law threw upon him no such obligation. All that he had to show was that his incapacity was due *de facto* to the accident which happened, and not to some new cause intervening; and however remote, however indirect, however improbable, or however unnatural the result might be, nevertheless, if it was the result of the accident which befel him, he was entitled to compensation. The findings of the arbiter appeared to his lordship to state clearly a chain of causation complete and unbroken. Lord Johnston said that he thought the result of his lordship's judgment would be to carry the idea involved in the phrase "chain of causation" to an extravagant point. On the facts, he had come to the conclusion that there was nothing to justify them in interfering with the sheriff-substitute's conclusion that the man's natural tendency to obesity, *plus* his advanced age, had occasioned his continued incapacity, and therefore did not justify his demand for continued compensation. His lordship did not think that the statute applied to the case. There was no true connexion between the workman's present state and the original accident, which left him in partial incapacity in the sense of the statute. Lord Skerrington concurred with the Lord President.

A CORNISH CENTENARIAN. — Mrs. Elizabeth Symons, of Crowan, recently celebrated the 100th anniversary of her birthday, and received a congratulatory letter from H.M. the King.

ROYAL COMMISSION ON VENEREAL DISEASES.

AT the twenty-fifth meeting of the Royal Commission on Venereal Diseases evidence was given by Dr. J. S. Risien Russell, who had been nominated to appear before the Commission by the Royal College of Physicians of London.

Dr. Russell's evidence was chiefly concerned with the relation of syphilis to general paralysis, locomotor ataxy, and to nervous diseases as a whole. He was unable to give any statistics, but he stated that he had come to the conclusion that syphilis is very often the cause of nervous diseases, and that without syphilis general paralysis of the insane and locomotor ataxy would not exist. In the case of general paralysis he had not had experience of any form of treatment which resulted in the cure of the disease or in arresting its progress. Locomotor ataxy could, however, be very definitely influenced for good by treatment. On the subject of the Wassermann test Dr. Russell said that the test should only be relied on when performed by some recognised expert and that one negative result should not be regarded as conclusive. He thought that there would be advantage in the standardising of the test. Dr. Russell was not in favour of notification of venereal diseases; such a measure, he considered, would lead to patients having recourse to quack treatment. The evil of quackery he regarded as a very serious one, and more especially with respect to venereal diseases he thought that the law dealing with quack treatment and advertisements needed strengthening.

At the twenty-sixth meeting Dr. Douglas White gave evidence. Dr. White submitted an estimate which he had made of the prevalence of venereal diseases in the United Kingdom. No direct statistical basis is at present available for the purposes of such an estimate, but from a consideration of the existing statistics regarding venereal diseases in this country, and a careful comparison (in which an attempt was made to allow for difference of conditions) with the estimate which has been made as a result of a statistical inquiry in Prussia, Dr. White arrived at the conclusion that there were every year 122,500 fresh cases of venereal disease in London and 800,000 fresh cases in the United Kingdom. He computed that of the 800,000 fresh cases 114,000 would be syphilis and the remaining 686,000 cases gonorrhœa and chancroid. From these figures he deduced that there must be in the United Kingdom some 3 million syphilitics. As regards syphilis Dr. White compared these results with the estimate obtained by assuming that a certain percentage of cases of syphilis find a conclusion in general paralysis or locomotor ataxy. The figures obtained from the results of notification in Denmark had led to the conclusion that in that country rather less than 2½ per cent. of syphilitics died from general paralysis. In the United Kingdom there are about 2600 deaths annually from general paralysis and about 700 deaths from locomotor ataxy. If it may be assumed that 3 per cent. of cases of syphilis result in deaths from these diseases, the conclusion is reached that there are about 111,000 syphilitic infections annually. This figure Dr. White compared with the 114,000 fresh infections estimated by the indirect method already mentioned.

Dr. White said that he had not had an opportunity of studying some figures recently published in Vienna which were referred to by the members of the Commission. These figures suggest that 7½ per cent. of cases of syphilis result in locomotor ataxy or general paralysis. Passing to the means of combating venereal diseases Dr. White said that prevention would depend on two elements—facilities for treatment and education of the public. If there were no facilities education would largely fail of its purpose, and if there were no education the facilities would not be fully utilised. He regarded ignorance of the public as the root factor in the spread of venereal disease, and from reading various official reports from foreign countries he had formed the impression that syphilis and ignorance walk hand in hand. The matter was one of much difficulty, but he thought that it was clear that adolescents of both sexes should be instructed in sex hygiene and such teaching might be begun in the case of boys at about the age of 16 and in the case of girls at 15. He suggested that at public schools a course of lectures should be given by a selected

medical man; and at universities similar lectures, but with more special reference to disease and the need for early treatment in case of its acquisition, should be made compulsory. He recommended a similar procedure for adoption at secondary technical schools and evening schools. In addition he advocated that the Government should employ a certain number of medical men and possibly some specially instructed laymen to give lectures on this subject to the employees at large factories; lady lecturers should be employed in the case of girls. He would suggest that the whole procedure ought to be made under the control of some central body resembling the societies which exist in Germany and the United States, and this central body, he thought, might well receive subventions from public funds.

Public Health.

LOCAL GOVERNMENT BOARD STATISTICS OF NOTIFIABLE INFECTIOUS DISEASES, 1913.

THIS report[1] gives statistics of the numbers of cases of notifiable infectious diseases reported during 1913 in the various administrative areas of England and Wales. The number of cases and the rates per 1000 of population are set out in tables for each separate sanitary area in the case of the following diseases: small-pox, typhus fever, scarlet fever, diphtheria, enteric fever, puerperal fever, and erysipelas. No cases of plague or cholera occurred during 1913. The notifications of tuberculosis, cerebro-spinal fever, and polio-myelitis are dealt with in special summary tables. This is the third year in which the English statistics of notifiable infectious sickness have been presented in this form,[2] and, as the medical officer of the Board, Dr. Arthur Newsholme, points out in his introductory statement, the value of the tables must rapidly increase as the series gets longer and the possibilities of comparison with past years become greater. The figures for aggregate populations—for example, the aggregates of urban and rural districts which are given for each county—are particularly valuable for comparative purposes. During the whole year only 90 cases of small-pox and 18 cases of typhus fever were notified in England and Wales. Scarlet fever cases numbered 130,626, as compared with 107,477 in 1912; and diphtheria cases 50,850, as compared with 44,687. In the case of both these diseases the general prevalence began to rise in the late summer and early autumn and continued exceptionally high until the end of the year. The enteric fever notifications numbered 3117, as compared with 3283 in 1912 and 13,730 in 1911. Only three cases of paratyphoid fever were separately notified. Ophthalmia neonatorum was notified in 2078 cases from the 216 areas in which notification of this disease is obligatory. The total number of notifications of pulmonary tuberculosis in England and Wales was 96,553, or 2·64 per 1000 of the population. This figure, however, apparently is subject to further correction. The publication of detailed tables as to tuberculosis notifications has been deferred for the issue of the annual report of the medical officer of the Local Government Board for 1913–14, when returns will be available from the medical officers of county councils and county boroughs, in which notified cases of tuberculosis will be classified as to their age and sex, and duplicate notifications will have been eliminated as far as practicable. The world-wide distribution of small-pox is illustrated by a statement of occurrences of small-pox abroad during 1913, prepared by Dr. R. W. Johnstone and included in the report.

[1] Reports to the Local Government Board on Public Health and Medical Subjects. New Series, No. 89. London: Wyman and Son, Fetter-lane; Edinburgh: H.M. Stationery Office; Dublin: E. Ponsonby; Abroad: T. Fisher Unwin. Price 9d.

[2] THE LANCET, May 4th, 1912, p. 1209; May 31st, 1913, p. 1549.

MEMORIAL TO DR. EDWARD ADRIAN WILSON.—A memorial statue of the late Dr. E. A. Wilson, who died with Captain Scott while on the return journey from the South Pole, is to be unveiled in his native town of Cheltenham next July. The statue is the work of Lady Scott, and it is hoped that Sir Clements Markham, who over 60 years ago was a member of an Arctic expedition, will perform the unveiling ceremony.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of His late Majesty's Order in Council of August 11th, 1903, Surgeon James Herbert Wright has been allowed to withdraw from His Majesty's Naval Service with a gratuity (dated March 25th, 1914).

The following appointments have been notified:—Fleet-Surgeons: A. R. H. Skey to the *Princess Royal*; and H. P. Turnbull to the *Roxburgh*. Surgeon: J. C. F. D. Vaughan to the *Vernon*, additional for the *Vindictive*.

ROYAL ARMY MEDICAL CORPS.

Surgeon-General W. G. A. Bedford, C.M.G., has taken up duty at Pretoria as Deputy Director of Medical Services.

Brevet-Colonel and Lieutenant-Colonel F. Smith, D.S.O., has been appointed Senior Medical Officer on board the transport s.s. *Rohilla* from Karachi. Lieutenant-Colonel D. M. O'Callaghan has been appointed Senior Medical Officer to the South-Eastern Coast Defences, vice Lieutenant-Colonel F. R. Newland, appointed to hold charge of the Military Hospital at Colchester. Lieutenant-Colonel G. H. Barefoot has been selected for the higher grade of his rank. Lieutenant-Colonel F. J. Morgan has joined the Eastern Command. Lieutenant-Colonel E. M. Pilcher, D.S.O., has been appointed to Salisbury Plain District for special duty at the Military Hospital, Tidworth. Lieutenant-Colonel J. C. Connor has been placed under orders to join the Irish Command on April 16th. Lieutenant-Colonel E. M. Hassard has been granted six months' general leave of absence home from India.

Major E. Brodribb has been appointed Specialist in Ophthalmology at the Military Hospital, Malta. Major W. R. Blackwell has joined the Medical Division of the War Office for special duty. Major J. Cowan has been appointed to hold charge of the Pachmarhi Military Hospital and the Cantonment General Hospital. Major G. J. A. Ormsby has been appointed to the Irish Command. Major H. B. Fawcus has been appointed Instructor at the School of Army Sanitation, Aldershot, vice Major C. E. P. Fowler. Major H. G. Pinches has been appointed to the Eastern Command. Major C. B. Martin has taken up duty at the Royal Military College, Sandhurst. Major R. W. Clements has joined at Cork. Major F. E. Gunter has been appointed to the Royal Military College, Sandhurst. Major J. Matthews has arrived home from Secunderabad. An exchange on the roster for service abroad has been approved between Major J. G. McNaught, who will proceed abroad, and Major T. P. Jones at the trooping season. Major C. T. Samman has been transferred from Mhow to Kamptee. Major E. S. Clark has joined at Jhansi. Major W. L. Baker has been appointed to the Staff of the London Recruiting Area. Major A. H. Safford has arrived home from India. Major S. A. Archer has been appointed to hold charge of the Military Hospital at Dundalk. Major A. L. Scott has been transferred from Colaba to Ahmednagar Cantonment. Major J. M. Sloan, D.S.O., has taken up duty at the Military Hospital, Lahore. Major E. W. Bliss has arrived home for duty from India.

Captain T. McC. Phillips has been granted six months' general leave of absence home from India. Captain M. Leckie has been appointed to the Southern Command. Captain R. M. Dickson, Captain F. H. M. Chapman, and Captain F. J. Stuart have arrived home on leave of absence from India. Captain R. G. H. Tate has joined the Dublin District. Captain O. R. McEwen has been appointed for duty in the Belfast District. Captain A. G. Jones has taken up duty as Officiating Staff Surgeon at Rawal Pindi Cantonment. Captain C. Ryles has joined at Alderney. Captain J. Startin has been granted six months' general leave of absence home from India. Captain F. C. Lambert has been appointed Specialist in Advanced Operative Surgery to the Poona Division of the Southern Army in India. Captain E. B. Booth has embarked for the Sierra Leone Protectorate. Captain A. Shepherd has been transferred from the Military Hospital at Maymyo to Rangoon. Captain C. W. Bowle has been appointed to the Irish Command. Captain F. H. Bradley has arrived home on leave of absence from India. Captain J. A. Bennett has been appointed to hold medical charge at Newport. Captain J. E. M. Boyd has been placed in charge of the Brigade Bacteriological Research Laboratory at Ferozepore. Captain D. F. Mackenzie has joined at Meerut.

Lieutenant W. Stewart has been transferred from the Military Hospital at Lucknow Cantonment to Agra. Lieutenant L. Buckley has relinquished duty at Bordon. The following lieutenants have embarked for a tour of service in India: E. B. Allnatt, W. B. Stevenson, J. L. Ritchie, D. T. Richardson, and G. A. Blake. Lieutenant T. A. Watson has been selected for appointment as Specialist in Advanced Operative Surgery to the Lucknow Division of the Army in India. Lieutenant W. L. Webster has embarked for a tour

of service in Egypt. Lieutenant H. J. G. Wells has been transferred from the Military Hospital at Rawal Pindi to Nowshera. Lieutenant E. C. Deane has taken up duty at the Military Hospital, Lucknow Cantonment. Lieutenant E. L. Fyffe has joined at Poona.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel T. W. Irvine has been transferred to Peshawar as Civil Surgeon. Lieutenant-Colonel J. Gould has been appointed to officiate as Deputy Director-General at Headquarters, Simla, *pro tem.* Lieutenant-Colonel R. C. McWatt has been appointed Agency Surgeon to the Eastern Rajputana States. Lieutenant-Colonel A. W. T. Buist has been appointed to hold civil medical charge at Campbellpore.

Major R. Markham Carter has been appointed to officiate as Presidency Surgeon, Second District, Bombay, *pro tem.* Major J. Fisher, D.S.O., has joined at Jaipur. Major J. M. Woolley has been appointed for duty in Bengal Presidency. The services of Major A. C. MacGilchrist have been placed temporarily at the disposal of the Director-General. Major S. Evans has taken up duty as Professor of Midwifery at the Grant Medical College, Bombay. Major S. P. James has been granted leave of absence on medical certificate for eight months. Major M. MacKelvie has been appointed to officiate as Civil Surgeon (Second Class) and posted to Rajshahi. Major A. P. Stevens has taken up duty at Gaya.

Captain J. Munro has been appointed to the Civil Medical Department in Bengal Presidency. Captain R. A. Needham has been appointed to officiate as Assistant Director-General at Headquarters, Simla. Captain R. B. Lloyd has been appointed to officiate as Chemical Examiner to Bengal Presidency and Professor of Chemistry at the Government Medical College, Calcutta. Captain A. D. Stewart has been appointed to officiate as Medical Officer of Health at Simla. Captain R. Flowerdew has been appointed to officiate as Second Medical Officer at Port Blair. Captain P. K. Tarapore has been appointed to act as Superintendent of the Insein Central Jail. Captain N. M. Wilson has been appointed Plague Medical Officer at Gurdaspur. Captain A. K. Lauddie has taken up duty at Dehra Ghazi Khan as Civil Surgeon.

TERRITORIAL FORCE.

Royal Army Medical Corps.

South Midland Clearing Hospital, Royal Army Medical Corps: Bernard Grainger Goodwin (late Lieutenant, Royal Army Medical Corps) to be Captain (dated Dec. 4th, 1913).

DEATHS IN THE SERVICES.

Brigade-Surgeon Edward Hopkins, aged 78, at Carreg Cennen, Llandilo, on March 29th. He entered the service in 1858. He served during the Indian Mutiny, being present at the action of Doadpore and the taking of Fort Mudjedea (medal). He took part in the North-West Frontier Campaign of 1863 (medal and clasp) and in 1878–80 served in the Afghan war, taking part in the march from Kabul to the relief of Kandahar (medal with clasp and bronze star). He also took part in the Soudan Expedition 1884–85.

THE LATE MR. HARRY MAULE CROOKSHANK (PASHA).

Mr. H. M. Crookshank, M.R.C.P. Irel., F.R.C.S. Edin., died at Monte Carlo on March 25th in his sixty-sixth year. He received his medical education at University College Hospital, and after qualifying served in Egypt and in the Franco-German and Russo-Turkish wars. In 1870 and the following year he was surgeon to the British Red Cross Society at Sedan and Metz, in 1876–77 he was in charge of the ambulance north of the Balkans during the Russo-Turkish war, and in 1885 he was with the British forces at Suakim in the Soudan campaign. From 1897 to 1907 he was British Controller-General of the Sanieh Administration, having previously held the appointment of Director-General of the Egyptian Prisons Administration. Mr. Crookshank, who could show medals for all the campaigns in which he served, was created a Pasha in 1890. He held the Imperial Order of the Medjidieh and Second Class of the Osmanieh, he was a Knight of Grace of the Order of St. John of Jerusalem, and possessed the French Red Cross Society's Order.

DONATIONS AND BEQUESTS.—The late Mr. George A. Harrop has left by will £500 to the Manchester Eye Infirmary.—By the will of the late Mrs. Grace C. P. Mahon the British Home for Incurables at Streatham will receive £3000.—By will the late Mr. Alfred Bradley, of Nottingham, left £1000 each to the Nottingham Day Nursery and Orphanage and the Nottingham General Hospital, and £500 each to the Midland Counties Home for Incurables and the Nottingham and Notts Association for the Prevention of Consumption.—The late Mr. John Gilbert Crompton, J.P., of Derby, has bequeathed £2000 to Derbyshire Royal Infirmary and £500 to Wirksworth Cottage Hospital.

MEDICAL PRACTICE UNDER THE INSURANCE ACT.

(BY OUR SPECIAL COMMISSIONER.)

(*Continued from p. 923.*)

XLI.—LONDON: THE TREATING OF INSURED PERSONS AS PRIVATE PATIENTS; THE NON-PANEL DOCTORS' VIEW.

A PRACTITIONER at Finsbury who has realised a considerable increase in his income by refusing to go on the panel, recently argued to me that if a panel doctor does not examine his patients properly he will degrade as a practitioner—he may begin by being in a hurry, but later he will lose discrimination. The danger, in fact, is that panel doctors, especially those with very large lists, will become treaters of symptoms and writers of prescriptions instead of diagnosers of disease. "If a panel doctor does his work thoroughly it will not pay," said my informant, "the panel doctor must suffer in his pocket or he must deteriorate as a man of science." Taking his own experience and that of his partner, my informant found that working together they could not do justice to more than an average of about 45 patients in a day. For an ordinary consultation the minimum charge would be 1*s.* 6*d.*, and 2*s.* 6*d.* if an examination was necessary. But a good many of these 45 patients would be in a position to pay more than the minimum. As panel patients, however, they would only bring in about a shilling per item, or 45*s.* a day, a sum that was not sufficient to cover the working expenses of two practitioners, especially remembering the scale of London expenses for rent and other things. Yet there would be no time left to earn more money, so that the temptation would be very strong to take more panel patients and give them each less personal attention.

Even under the old club system the insurance principle did not always apply. Patients constantly selected their own doctors instead of availing themselves of the gratuitous services of their club doctor, and from this tendency to limit the amount of contract work which has always existed has grown a superior social class which has come under the operation of the National Insurance Act. Yet a National Insurance Act from which there is a widespread wish to contract out must be a contradiction in terms; the great difficulty is to find a basis to work upon to ensure that the medical service given is good enough to have general attraction. It has been suggested that no panel doctor should have more than 2000 insured persons on his list, any larger number of patients meaning scamped work; but the non-panel doctor at Finsbury thought 500 panel patients sufficient for one man. He took down his ledger, he recalled his experiences with his former club patients, and came to the conclusion that out of 1800 persons to whom he and his partner had given medical advice in the course of a year 250 to 300 were not insurable. They had businesses of their own, were not employed, and did not come under the Act. Among the others, 500 would willingly make their own arrangements—indeed, many of them were doing so now though entitled to the services of a panel doctor. The remaining 1000, that is 500 for each partner, were well entitled to figure on the contract practice list, but though paying at contract rates should be treated, according to his and his partner's theory of medical duty, in exactly the same way as the other patients. There should be

no difference whatsoever in the treatment of patients, but, he added, every medical practitioner should be willing to do his fair share of poor practice. Of course, this is an impossible suggestion in a highly organised profession. The fact that in this way there would be about 630 insured persons for every medical practitioner, and that as some of these would be willing to make their own arrangements this would leave about 500 persons to be treated at contract rates on each list, harmonises with my informant's estimate of what each man should do, but does not make his contention feasible.

The Use of Salvarsan under the Act.

Faulty as the service is to-day in some respects and in some places, it would be infinitely worse if the Act was so extended as to include the dependents. I have chronicled many districts where the Act is in working order, and have read evidence of a satisfactory sort about places which I do not happen to have visited, but there should be much hesitation before the benefits of the Act are extended to dependents. Though many dependents need the help of the Act far more than those who are actually insured, an efficient service is impossible as yet. Nor does the proposed establishment of a State Medical Service meet the difficulty, for it would not increase the supply of doctors, at any rate not at first. Nevertheless, it might be efficacious if the State Service was limited to those who were in a very necessitous position—to those, for instance, whose annual earnings or income did not exceed £80 in town or £45 in the country. Most practitioners in industrial districts would then be prepared to attend to their proportion of the poor and make no difference between contract and private practice. As matters now stand there must be a great difference. In proof of this the administration of salvarsan may be considered. It is not merely a question of the expense but of the time. The Insurance Committees, I am assured, are willing to supply salvarsan, but where is the panel doctor who would be willing to administer it? Speaking to a non-panel doctor, he told me he had occasion to give salvarsan about once a week, that he always stayed with his patient for at least an hour, and such treatment could not possibly be made to pay for less than a minimum fee of 3 guineas. The technique had to be very accurately carried out and the patient observed for a long time, and it was absurd, he said, to expect a practitioner to assume such a grave responsibility and take all this trouble over contract patients.

But if the Act fails in securing for insured persons the best treatment of syphilis in some forms, the same may be said in regard to tuberculosis. A few cases have been recorded where panel doctors have failed to devote the time necessary to discover the presence of tuberculosis, and it is clear that where a practitioner has an enormous number of patients on his list he runs a certain risk of unfortunate oversights of this kind.

As for sanatorium treatment under the Act, I have discussed this matter with many medical men who have given me interviews, and I have several times been asked what is the practical use of diagnosing tuberculosis if the machinery for treatment is not yet forthcoming.

Suggested Remedies.

Inquiring from some non-panel doctors what remedies they thought would render the Act more acceptable to the profession, some, a little to my surprise, found the Medical Subcommittee an improper tribunal. Complaints against medical men, it was urged, should be dealt with in the same manner as by the Law Society or by court-martial in the navy or army. A man should be judged by his peers, they said. A medical man who was unworthy of his profession would be more severely dealt with by fellow medical men than by a mixed committee, while there would be much less chance of error. Considering the constitution of these subcommittees I think the danger that a medical man will be harshly treated is rather remote.

Then much greater elasticity was demanded as to the interpretation of Section 15, Clause 3, in regard to patients making their own arrangements. Every insured person who so desired should have, it was put to me, no difficulty in securing the services of his own doctor, whether he was on the panel or not. This should be possible without the latter signing a contract with the Insurance Committee and at fees agreed upon between the practitioner and his patient. Other medical men suggested to me that medical benefit under the Act should be abolished altogether. The insured persons would thus receive a larger sum of money when they were ill, and with this could make whatever arrangements for medical attendance they thought fit, subject, I suppose, to some sort of supervision by those administering the funds.

Other medical men I found much interested in contemplating the situation that would arise if and when the dependents became insured persons. They calculate that if the Act is extended to the dependents and all who are under the income tax limit some 38,000,000 men, women, and children would receive contract medical attention. According to one calculation, if these people were divided between all the available practitioners there would be less than 2000 for each, or an income of about £500, which, when the high rent, the cost of a conveyance, and other working expenses are deducted would barely leave half that amount as net income. With such a poor prospect the profession would fail to attract.

It will be seen that there are a good many contradictions in all this. On the one hand we are told that if they are to be treated with the same care as private patients no practitioner should have more than 500 persons on his contract list. Then it is urged at the same time that some 800 out of every 1800 insured persons actually on the list of a panel doctor should not be treated under the contract system but be made to pay proper fees. Receiving fees from the 800, the practitioner could afford to treat the 1000 in the same careful manner as his private patients. On the other hand, others argue that even if they had a list of 2000 insured persons they would not receive enough to live unless they had private practice as well, while yet others complain that with 2000 insured persons the crowd at the surgery frightens away private practice. Thus the confusion of many counsels becomes worse confounded.

Speculative Finance.

Great and contradictory as are the effects and opinions engendered by the Insurance Act, its consequences will be much more disturbing and far-reaching if it is extended to the dependents, at any rate until some long experience of contract medical practice has been gained. In this respect there is a danger which has not received the consideration it deserves. Whatever opinion may be held, however widely such opinions may differ, every right-minded person must feel, and feel strongly,

that the matter has to be settled on its own merits, to the best advantage of the community at large, and the solution of the problem must not be influenced in such a way as to promote the commercial interests of speculative finance. We must not allow the nation at large to be taxed, the medical profession disturbed to the very foundations on which its traditions and its scientific attainments have been built, so that certain groups of shareholders may receive higher dividends.

At the meeting held on Nov. 29th, 1913, when the National Medical Union was formed, Dr. H. B. Greene referred to the action of politicians and financiers in moulding the Insurance Act. He pointed to the group of capitalists sitting on both sides of the House of Commons. The power of money would be used so as to compel some 38,000,000 men, women, and children to be insured, the majority paying premiums to the insurance companies in which these capitalists were interested. Dr. Greene personally confirmed to me the printed report of his speech on this subject. If the women and children are to be included in the Act there will only remain a population of about 5,000,000 among whom private practice will still be possible. That this may be brought about, not on its own merits as a needed reform, but as the result of a financial move, is quite obvious if we bear in mind, said Dr. Greene, that there are 164 Members of Parliament who are personally interested in insurance companies. These insurance companies are large advertisers, and they could exercise some influence over the press. But such an all-important matter as National Insurance should of course be decided wholly and solely on its own merits and with absolute singleness of purpose. It is the health, therefore the life, of the nation which is concerned, and surely this should be a sacred task, and we must not allow its desecration by the admixture of sordid interests.

Having now given at considerable length some of the opinions held by London non-panel doctors, together with an account of the organised efforts made to resist the Act, I propose to deal in the same way with that portion of the profession practising in the metropolis which has rallied to the Act and is helping to realise its object.

(To be continued.)

WOMEN MEDICAL OFFICERS AND MARRIAGE.—It was urged at the meeting of the London County Council on March 31st that medical women engaged in work connected with the medical inspection and treatment of school children should not be required to resign their appointments on marriage. The discussion was not concluded, but it is probable that at an early date the Council will consider the whole principle involved.

PRESENTATIONS TO MEDICAL MEN.—At Bristol on March 19th the members of the local corps of the St. John Ambulance Brigade presented their chief superintendent, Dr. Charles Augustine Hayman, with a silver rose bowl, subscribed by 350 members, as a mark of respect and esteem on the occasion of his recent wedding.—Dr. David Pride, J.P., was on March 26th presented with a roll-top desk, study chair, and a purse of sovereigns on behalf of the Neilston parish council and friends as a mark of appreciation and esteem. Dr. Pride has practised in Neilston for over 50 years, and last November he completed a term of 50 years as parochial medical officer of health. The presentation was made at the Glen Halls, Neilston, Glasgow, when Mr. James Walker, J.P., presided.

Home and Foreign Notes.

(FROM OUR OWN CORRESPONDENTS.)

MANCHESTER.

Hospital Saturday Fund and the Truck Bill.

THE total amount of the Hospital Saturday Fund from all sources last year was £6906, as compared with £7114 in 1912, £7496 in 1911, and £7166 in 1910. The net decrease in the income as compared with 1912 was £207. At the annual meeting of the subscribers to the fund a resolution protesting against the insertion of the following clause in the Truck Bill was moved:—

> That an employer shall not make any deduction or require any payment from his workpeople in respect of any subscription or payment to, or otherwise in connexion with any benefit society, sick club, hospital, or any other society, club, or benefit, or for medical attendance.

It was contended that if it became law it would discourage contributions from workpeople to the Hospital Saturday societies of the country, and would deprive many hospitals of a large portion of their income.

St. Mary's Hospitals: The Annual Meeting.

At the annual meeting of subscribers to St. Mary's Hospitals, held on March 30th, it was stated that the total number of patients had decreased during last year to 15,531, the number for 1912 being 19,969. This is ascribed to the operations of the National Insurance Act, a result which was anticipated, there being fewer out-patients and more in-patients. The expenditure was £15,234, as against £14,950 in the previous year, while the income was £13,736, compared with £12,224 in 1912. The Women's Guild Service collected during the year £565, of which £255 were from the Alexandra Flower Day and Carnival.

A Singular Tragedy.

At an inquest held at the Royal Infirmary, Preston, on March 28th, on the body of a female patient evidence was given that the deceased while undergoing radium treatment for deafness swallowed a metal cylinder containing mesothorium. This was inserted alternately into each ear and nostril. The cylinder disappeared, and in spite of careful search it could not be found either in the mouth or nose or in the room. Finally, by means of the X rays the tube was located in the patient's stomach, whence it was successfully removed by operation. Death, however, resulted from heart failure following injections of atropine, morphine, and hyoscine, administered before the operation.

March 31st.

SCOTLAND.

Scottish Support for Nurses' Registration.

Lord Inverclyde, the lord lieutenant of Dumbartonshire, presided last week over a meeting of the Association for the Promotion of the Registration of Nurses in Scotland, held in Edinburgh. The annual report, which was presented by the honorary secretary, Dr. Donald J. Mackintosh, M.V.O., medical superintendent of the Western Infirmary, Glasgow, showed that the members of the association now number more than 2900. The financial statement was presented by the honorary treasurer, Dr. John McCubbin Johnston, and Sir J. Halliday Croom spoke in support of the object of the association.

London Post for Glasgow Pathologist.

Satisfaction is felt in Glasgow that Dr. Carl Hamilton Browning has been appointed to the post of director of the new pathological institute at the Middlesex Hospital. Dr. Browning is at present director of the laboratory of clinical pathology at the Western Infirmary, as well as lecturer on the subject in the university.

Death of Dr. Alexander Roxburgh.

The death occurred last week at Pollokshields, Glasgow, of Dr. Alexander Roxburgh, one of the best known medical men on the south side of the city. Dr. Roxburgh, who was a native of Glasgow, graduated in the University of Glasgow in 1886. After practising for a short time in Balfron he settled down in Pollokshields, where he soon took a leading place in the profession. He was an assistant surgeon at the Victoria Infirmary, and was for long associated with the old 3rd Lanarkshire Rifle Volunteers before the inauguration of the Territorial system. Dr. Roxburgh was a man who achieved considerable popularity both in the profession and with the outside public, and his early death from pneumonia is much lamented.

Airdrie and the Sanatorium Question.

The town council of Airdrie held last week a special meeting to consider a telegram from the Local Government Board to the effect that unless a scheme as to sanatorium arrangements was by March 26th approved of by them they could not distribute any portion of the grant to Airdrie. A minute of the committee on the subject was read, recommending provision for the treatment locally of advanced cases of tuberculosis with dispensary and beds to the satisfaction of the Local Government Board; also to appoint, either locally or conjointly with other local authorities, a tuberculosis officer not in private practice, who may act as medical officer of health, medical attendant at the infectious diseases hospital, medical attendant at the tuberculosis hospital, and police surgeon. With regard to the provision of a sanatorium, it was suggested that the council either join with the other burghs of the county in the Muirburie scheme or alternatively enter into a scheme with the county council of Lanark or some other body having the accommodation for the required number of beds. After some discussion the town council accepted the committee's recommendation.

Aberdeen University Graduation.

On the close of the winter session the Aberdeen University Spring Graduation took place in Marischal College on March 25th. In addressing the students Principal George Adam Smith alluded to the rise in the number of matriculating students of the University during the last two years. Last year the number of matriculated students was higher than for any previous year—namely, 1004, and this winter there is a further increase of 19, the numbers in medicine having risen from 252 to 270. Three new lectureships are to be instituted, two of them in the Faculty of Medicine, one a separate lectureship in public health, and the other the revived lectureship in tropical diseases. Principal Smith also made fitting allusion to the death of Lord Strathcona, in whom the University mourns one of her greatest chancellors. A peculiar interest was added to the proceedings by the presence of the Hon. Walter Hines Page, the United States Ambassador, who received the honorary degree of Doctor of Laws. In the evening the usual reception was held in Marischal College.

Braemar Isolation Hospital.

At a recent meeting of the Aberdeen district committee an interesting report was submitted with regard to the cost of Braemar isolation hospital and the number of patients treated. Since 1901 the upkeep of the hospital has cost £1116 19*s.* 4*d.*, and the number of patients treated has been 13, or one in every year on an average. On the motion of the county medical officer consideration of what was to be done with the hospital was delayed until the county council had considered the provision of sanatoriums for the district.

Infectious Diseases Hospital for Inverness.

The town council of Inverness has decided to purchase Oulduthil House and grounds as a site for the purposes of the proposed new infectious diseases hospital and sanatorium at the price of £3000. The ground extends to 28 acres and is in proximity to the town.

March 31st.

IRELAND.

Certification of Insured Persons.

THE two methods employed by the Insurance Commissioners for the certification of insured persons—viz., by practitioners on a panel and by salaried advisers—had been arranged to terminate in January last. At the beginning of January, however, the Commissioners invited both the panel practitioners and the advisers to continue their duties up to the end of March. It was fully expected that by that time some more permanent scheme would have been arranged, and would have received the approval of the Treasury. No scheme has, however, yet received official sanction. It was confidently asserted a few weeks ago by representatives of the societies that the Commissioners were about to appoint a number of whole-time certifiers, but if this was their intention, its execution has been postponed if not abandoned. At the end of March the Insurance Commissioners reappointed their medical advisers for a further period of three months, and invited the panel practitioners to continue their duties for the same period. To this they have agreed, and the whole question still remains open for settlement. It is now eight months since the Chancellor of the Exchequer promised funds for certification sufficient to satisfy the profession, and the inordinate delay in deciding on a scheme calls for explanation. Meanwhile the sick insured are deprived of their benefits, and their efficient treatment is embarrassed by the intrusion of third parties.

Dublin Hospital Sunday Fund.

The annual meeting of the supporters of the Hospital Sunday Fund was held last week. The report of the council stated that collections had been made in 284 places of worship, and that the amount contributed in 1913 was £3301 12*s.* 4*d.*, being a decrease of £47 5*s.* 9*d.* as compared with 1912. The committee of distribution have arranged for the distribution of £3120 between 16 institutions. This is the fortieth year of the Fund.

Sir Patrick Dun's Hospital.

This is the bicentenary year of the death of Sir

Patrick Dun, out of whose estate the hospital bearing his name was erected nearly 100 years later. The hospital authorities are taking advantage of the occasion to organise a fête for the relief of their funds. Lord Iveagh has kindly lent his grounds for the purpose, and the fête will be held some time in June. In the week following the fête a dramatic entertainment in aid of the hospital will be given in the Gaiety Theatre. The hospital is at present in debt to its bankers for a sum of £4000.

Royal Victoria Hospital, Belfast.

At the annual meeting of the corporation of the Royal Victoria Hospital, held in that institution, Belfast, on March 26th, it was reported that 3680 in-patients (2139 surgical and 1319 medical) were treated during 1913, while in the out-patient department 33,640 new cases were received. The total revenue receipts for the year were £16,828 (against £16,514 in 1912), while the disbursements were £16,652 (against £16,537 in 1912). The working classes gave during the year the large contribution of £4997 to the funds of the hospital. At the meeting Mr. James Mackie (a well-known Belfast merchant) said that he and his brother had decided to pay for the new electro-cardiograph which had recently been installed in the hospital.

Death of the Lord Mayor of Belfast.

Very genuine regret is felt by the medical profession in Belfast at the sudden death of the Lord Mayor of Belfast (Mr. R. J. McMordie, M.P.). At a meeting of the Ulster Medical Society held on March 26th, on the motion of the President (Mr. A. B. Mitchell), seconded by Sir John Byers, an appropriate resolution was passed in silence, all the members standing. The late Lord Mayor was a warm supporter of the Samaritan Hospital, Belfast, which was founded by his late brother, Dr. W. K. McMordie, and of the Ulster Hospital. He inaugurated the King Edward Memorial (of the executive committee of which he was chairman), which is to take the form of a new block at the Royal Victoria Hospital for X ray and vaccine therapy. He was a great friend to medicine, and in his official capacity was most punctilious in recognising the position of the profession.

March 31st.

BUDAPEST.

Reform of Medical Education in Hungary.

STATEMENTS have lately been published throughout the whole country purporting that the education of medical students is unsatisfactory and that graduates are allowed to leave the universities before they have become competent to practise. This fact induced Béla Jankovich, the Minister of Public Instruction, to hold an inquiry into the state of medical education and to consider what changes, if any, were required. At this inquiry, which was held on Feb. 20th, it was resolved to recommend that the medical curriculum should be lengthened by half a year and that the present examination system should be improved. The medical curriculum at present consists of ten half-yearly terms, during which time students have to pass three examinations—one at the end of the second year and two at the end of the fifth year. They have then for one year to attend the practice of a recognised public hospital, and afterwards they receive their diplomas. The medical curriculum therefore lasts for six years. According to the new scheme the curriculum will last for six and a half years, because the final examinations will require a special half year after the fifth university year. The first examination will be divided into two portions, thereby enabling the students to prepare themselves better for the ordeal. The first portion to be passed at the end of the first year will comprise the subjects of physics, chemistry, and one part of anatomy; the second portion to be passed at the end of the second year will comprise physiology and the final part of the examination in anatomy. In conjunction with the dividing of the first examination, zoology, botany, and mineralogy, subjects which are of no practical importance to a medical man, will be omitted. Compensation will, however, be given to natural science in another direction, for comparative anatomy and biology will become compulsory, and students will have to pass short examinations (*colloquia*) in these subjects. The teaching of clinical medicine and surgery will also be altered, for the number of hours which up to now have been compulsory (ten hours a week each subject) will be reduced, but in exchange for this a third subject can be attended. The professorial board of the medical faculty approved of these innovations, and the new system will therefore come in force.

The Vacant Professorship of Clinical Medicine.

The University of Budapest has three separate clinics for the teaching of clinical medicine, the directors of them being respectively Professor Alexander Korányi, Professor Ernest Jendrassik, and up to last September Professor Baron Carl Kétly. The latter resigned his chair last September, and for the time being his son, Ladislaus Kétly, extraordinary professor of internal medicine, has been entrusted with the directorship of the clinic, a reasonable arrangement, as he had been working in this clinic for the last 19 years as clerk, assistant, at first in minor capacities and ultimately as adjunct. The professorial board of the medical faculty appointed a competition for the position of professor according to the regulations of the University. There were four candidates—namely, Rezsö Bálint (assistant to Professor Korányi), Ladislaus Kétly, Béla Imrédy, and Jànos Plesch (lecturer at the University of Berlin). The professorial board selected a special committee for the purpose of considering the suitability of the merits of the several candidates, and on Feb. 12th Professor Korányi, the referee of the committee, presented a report—which occupied two hours in reading—on the merits of the applicants. The substance of his report was that Dr. Bálint should be recommended by the professorial board as the most suitable candidate and Dr. Plesch as the next best. The professorial board adopted Professor Korányi's proposal by 16 votes against 8 approving of Dr. Bálint as the most suitable candidate, and he will therefore be recommended to the King for appointment to the vacant chair. This resolution of the professorial board has been received with general disapproval both by the medical and the lay press on the ground that Ladislaus Kétly, who had been working for 19 years in his father's clinic, will by this resolution of the professorial board be compelled either to leave the clinic altogether or to become an adjunct associated with a professor much younger than himself.

March 28th.

Obituary.

WILLIAM BRUCE CLARKE, M.A., M.B. OXON., F.R.C.S. ENG.,

CONSULTING SURGEON TO ST. BARTHOLOMEW'S HOSPITAL.

WE regret to announce the death, at the age of 64, of Mr. William Bruce Clarke, late senior surgeon to St. Bartholomew's Hospital, and until recently a member of the Council of the Royal College of Surgeons of England. More than a year ago his many friends and old pupils were much concerned to hear that his health had broken down and that he had retired into the country. Recently he had an attack of influenza, and this was followed by pneumonia, which in the damaged state of his heart soon proved fatal. He died at Eastbourne on March 28th

William Bruce Clarke was born at North Wootton, Norfolk, of which parish his father, the Rev. W. W. Clarke, was rector. From Harrow he went to Pembroke College, Oxford, where he obtained first-class honours in natural science and the Burdett-Coutts University scholarship. After a short period as demonstrator of anatomy in the medical school of the University he proceeded to St. Bartholomew's Hospital. He qualified M.R.C.S. Eng. in 1877 and obtained the M.A. and M.B. degrees at Oxford the same year. In 1879 he took the Fellowship of the Royal College of Surgeons of England, and in 1885 he obtained the Jacksonian prize for his essay on the Diagnosis and Treatment of Diseases of the Kidney amenable to Direct Surgical Interference. The preparation for this essay first turned his attention to the serious study of renal surgery, a subject with which he remained prominently associated for the rest of his career.

WILLIAM BRUCE CLARKE.
(From a photograph by Messrs. Elliott and Fry, Limited.)

In 1882 Mr. Bruce Clarke was appointed demonstrator of anatomy in the medical school of St. Bartholomew's Hospital, and in the following year upon the sad death of Mr. James Shuter he was elected assistant surgeon to the hospital. For the next six years he continued to teach in the dissecting rooms, but it was not until 1903 that he was promoted to the full surgical staff, upon the retirement of Sir Henry (then Mr.) Butlin from the active service of the hospital. During the "eighties" and "nineties" promotion was very slow upon both the medical and surgical sides at St. Bartholomew's, and, like many others, Mr. Bruce Clarke while waiting his turn for a vacancy among the senior posts sought wider clinical experience elsewhere. At this period, then, he obtained the posts of surgeon to the West London Hospital and to St. Peter's Hospital for Stone, and at both institutions did valuable service to the charities, and trained many residents who will always be grateful for the valuable lessons which they learned from him.

Early in 1910 Mr. Bruce Clarke became senior surgeon to St. Bartholomew's Hospital, and on his retirement from the active staff in 1912 he was elected consulting surgeon. In the medical school he held successively for a number of years the lectureships in anatomy and in systematic surgery. At the Royal College of Surgeons of England and at the English Conjoint Board he served on many occasions between 1886 and 1910 as examiner in anatomy and in surgery. In 1907 he was elected to the Council of the College, but owing to ill-health he resigned this post last year, and giving up practice altogether went to live at Eastbourne.

Mr. Bruce Clarke loved his hospital work and took a keen and kindly interest in his patients and in all those who worked under him. He never forgot his old house surgeons and dressers, and every man who had belonged to his "firm" looked up to him as the embodiment of straightforwardness and shrewd good nature, who was always ready to help a deserving pupil. As a surgeon he was intensely practical. While not a great clinical teacher, in the sense that some of his predecessors and colleagues were, he encouraged common sense and resource, and taught the student to think for himself and to act promptly on his own account. He had no patience with circumlocution or subterfuge, but in all matters went straight to the point, and expected others to be equally frank and workmanlike. He was a bold and rapid operator, and seemed sometimes to be a survivor from the previous generation of surgeons with whom time was an object above all things. To see him amputate or cut down upon a kidney was a breathless experience; in such cases he was at his best, as the results proved. Possessed of great physical strength

and manipulative skill, he took special pride in what he called the "carpentry" of his profession, and for some years he did excellent work as head of the orthopædic department at St. Bartholomew's Hospital. He was, as might be expected from so practical a man, not a prolific author. But he wrote a number of papers, mainly upon his favourite subject, which appeared in the transactions of various medical societies, and in 1911 he published a "Handbook of Surgery of the Kidneys" which comprised the fruit of his long experience.

Mr. Bruce Clarke will long be remembered with affection by all who knew him. A strong man, of marked individuality and uncommon aspect, with a humorous gleam always lurking in his eye, his character made an instant appeal to all that was manly and good-natured in the student, and the feeling of confidence which he inspired was fully justified. He was a staunch supporter of the athletic and social sides of the hospital life, and his sound common-sense and practical knowledge were of great value to all the various hospital committees and were freely at their disposal. He carried his love for the mechanical into private life and was an expert amateur joiner, while motoring provided him with endless amusement.

A colleague on the staff of St. Bartholomew's Hospital writes as follows: "The many friends of Mr. Bruce Clarke have suffered an irreparable loss in his somewhat sudden death. To those who, like the writer, worked with him for over 30 years at St. Bartholomew's Hospital and knew him intimately a blank will ever remain. As a surgeon Bruce Clarke had an individuality which made him one of the most brilliant operators of his day. Rapid, but not rash, he knew no surgical fears. Owing to his resolute courage and mastery of anatomy the more difficult the case the greater he showed to advantage. As a surgeon no case was too difficult if he thought an operation should be done, and he never failed to complete the most dangerous operations. To witness some of his larger operations on abdominal and kidney tumours was to see some of the finest qualities an operator can show—coolness, courage, and the determination to complete in every detail what he had undertaken. Such operations often ended in a surgical triumph. For many years he helped the writer in the abdominal operations in Martha ward. Here he was invaluable; never obtrusive in his assistance or advice, but exactly following with his fingers the mind of the operator, giving just that quiet help and unspoken advice so valuable in an emergency. Fine as were Clarke's qualities as a surgeon, it was as a friend and loyal colleague that he is for the moment remembered. He was never known to make an unkind or even thoughtless remark about any of those with whom he worked; he was absolutely free from any thought of jealousy. Bruce Clarke will live in our memory as one of the kindest and truest of friends. In private life he was the soul of straightforwardness and kindness; most gentle and thoughtful for those in trouble, which, coming from his robust and manly nature, often afforded the greatest solace.

It was not so much the spoken word, but the feeling that his sympathy was absolutely true, for it came from one who never dissembled and therefore was never doubted. In the presence of Bruce Clarke one always felt that his manly nature was a most lovable one; and his memory will always remain in the respect and affection of his many friends and in the love of those colleagues who worked with him."

Mr. Bruce Clarke was twice married, and leaves one son.

Correspondence.

"Audi alteram partem."

THE QUESTION OF AERIAL INFECTION.

To the Editor of THE LANCET.

SIR,—In an annotation in THE LANCET of March 28th you refer to an article by Dr. C. V. Chapin in connexion with the spread of infection by air. I have not yet seen the article in question, but I am well aware of the valuable work of Dr. Chapin. I need scarcely say I am greatly in agreement with the contents of the annotation, but I must honestly state that I was astonished when I read: "The belief that scarlet fever, diphtheria, measles, and whooping-cough are air-borne is being abandoned by many observers." I am not aware that this belief is being abandoned by many observers, and I have been wondering why these four diseases are grouped together in the statement.

For a matter of 20 years or more many observers have abandoned the belief that diphtheria is air-borne, but, in so far as I am aware, there has been no such unanimity about scarlet fever, measles, and whooping-cough. My assistant, Dr. C. Price, and I have been endeavouring for over two years to demonstrate whether certain of the infectious diseases are conveyable by air, and our results have been somewhat puzzling. To attempt to go into them in a letter is out of the question, but it appears probable that scarlet fever is not conveyed by air. The evidence as to whooping-cough goes towards the same probability, though less strongly.

In the ward in which we have been conducting the work we did not feel justified in placing sufferers from measles for reasons entertained by us, but two children were on different occasions admitted there suffering from certain diseases, and though we were unaware of it, incubating measles. They were both immediately removed on the appearance of the measles eruption, but each infected other children—that, of course, despite the aseptic ritual which obtains in this ward. With chicken-pox the evidence concerning aerial conveyance goes to suggest that it is conveyed by air, that is to some extent, early in the disease, but it is probably not so conveyed on and after the third day of the eruption.

There is much to learn on this subject, and one must not forget that the power of infection may last only a very short time. Indeed, the infection of measles appears to be very short lived, and statistics that do not give the precise age of the disease are quite valueless and should be counted so. Your statement, which I quote above, is the only reason for my writing this letter. One is accustomed to consider deeply such statements coming from THE LANCET; but I feel that one would not wish to be too certain until proof positive was forthcoming, and therefore one would not care to mislead those who have not the opportunity of judging the actual position.

The work I refer to at this hospital does not apply to the treatment of the different diseases in box and cubicle wards, but to the treatment of

certain infectious diseases in an ordinary ward with the precautions of cleanliness and sterilisation conducted on modern methods.

I am, Sir, yours faithfully,

FREDERIC THOMSON.

North Eastern Hospital, St. Ann's-road, Tottenham, N., March 30th, 1914.

*** The sentence quoted by Dr. Frederic Thomson is too dogmatic in reference to a subject which abounds with side issues and upon which experienced men hold different opinions. We intended our note to convey the general sense that the view is passing which considered the air to be the chief vehicle for the spread of infectious disease.—ED. L.

SYPHILIS AND "MENTAL DEFICIENCY."

To the Editor of THE LANCET.

SIR,—In reply to the letter on this subject by Dr. K. Fraser and Dr. H. F. Watson in THE LANCET of March 28th, I wish to say that had I been aware of the series of experiments carried out by Dr. Watson, to which they now refer me, I should of course have omitted those lines in my letter to you of March 14th in which I wrote: "As far as I am aware no attempt has been made to ascertain the frequency of the positive reaction ..... in cases to which mental defect cannot be attributed." But these words, far from being the chief basis of my criticism, as is apparently assumed by Dr. Fraser and Dr. Watson, were of no important value to my contention that the conclusion in question was wholly unwarranted by the facts adduced. For I stated explicitly that, whatever might be the result of such "control" observations as I mentioned, any inquiry into the validity of this hypothesis of the causation of "mental defect," in the wide sense of the term employed by the writers, would, from the scientific point of view, be only just beginning.

What these writers have shown is that they found a positive reaction to the Wassermann test in about 50 per cent. of cases which had been classed as in some degree "mentally defective," and in about 8 per cent. of apparently normal children. Even if precisely similar results of the Wassermann test were arrived at by all skilled observers in the rest of Great Britain, in Ireland, and in all the foreign countries on whose work Dr. Fraser and Dr. Watson somewhat enigmatically repeat that they have no comment to offer, the conclusion that "syphilis is *the causative factor* in a very considerable percentage of cases of mental deficiency of whatever degree of severity" is clearly disallowed by the accepted rules of scientific method. Nor must it be forgotten that cases to which the character of "mental deficiency" is attributed must be carefully examined and differentiated before coming to any preliminary conclusion regarding its causal connexion with either syphilis or any other morbid process. For the term "mental deficiency" denotes a complex of highly heterogeneous contents.

In certain specified cases where the coexistence with syphilis of mental defect of some kind, or the sequence of one on the other, may point to the great probability that the mental defect would not have occurred without the syphilis, it might be correct to regard the syphilitic process as causative. Many instances of such cases, duly specified and differentiated, are to be found, and especially in the valuable publications of Dr. Mott. It may be, perhaps, not quite idle to add that to say (as I believe Dr. Mott has said) that in 50 per cent. of cases of congenital syphilis, which survive long enough, the syphilitic process has led to brain disease and mental defect is a proposition totally differing in effect, and arrived at by a totally different method from that which announces that 50 per cent. of mental deficiency cases in children are *caused* by congenital syphilis.

I am, Sir, yours faithfully,

London, March 29th, 1914. H. BRYAN DONKIN.

To the Editor of THE LANCET.

SIR,—In view of the importance of the subject of the relation between mental deficiency and syphilis I hope you will pardon this further encroachment on valuable space in your paper.

During the past few years there have been published results which give enormous importance to syphilis as an etiological factor in the production of mental deficiency, while other observers have as the result of laboratory and clinical observations reserved only a small place for this "secret scourge." These facts force us to turn our attention to the technique of the Wassermann reaction, on which must partly depend these discrepancies.

In the first place it would appear that the results of different observers cannot be compared as there are few who utilise Wassermann's original method, and the modifications of such are so many that one is bewildered not so much by the details of these modifications as by the variations in the percentages of actual positive results. Secondly, the inclusion as positive of reactions which are classified as "doubtful" or "faintly positive" (whatever this may mean to the skilled observer) makes it quite impossible to bring into line the work of different pathologists.

Where it is possible to ascertain the method employed, it is found that the results of those using the original Wassermann method show a smaller percentage of positive reactions than in those cases where modifications or "short cuts" have been employed. In this instance I may mention the work of Dean carried out in Germany, giving a percentage of 16, and my own cases in England, giving a percentage of 10, in congenital mental defectives under 20 years of age. It is nevertheless held by many observers that the antigen used by Wassermann, although somewhat difficult to obtain, is more delicate than other antigens, such as cholesterin, heart muscle extract of normal liver, &c. Gordon has collected the results of 12 different observers, and he finds that in 3872 cases a positive Wassermann was obtained in 9·1 per cent.[1] It is difficult to reconcile this with the results of Dr. Fraser and Dr. Watson, who state that about 50 per cent. of cases of mild mental deficiency are associated with congenital syphilitic infection. If the conclusions of these observers are correct, it gives us a new conception of the causation of congenital mental deficiency. In addition, Dr. Carl Browning mentions the incidence of syphilis among children at the Royal Hospital for Sick Children, Glasgow, as 10 per cent. Knopfelmacher and Lehndorff examined 135 mothers of syphilitic children and obtained positive results in 65 per cent., and Dr. Mott states that 100 per cent. of mothers of syphilitic children give a positive reaction. To

[1] THE LANCET, Sept. 20th, 1913, p. 861,

these we must add the fathers of syphilitic children and those cases where syphilitic infection has led to sterility. Including also at least a proportion of the brothers and sisters of our syphilitic children, we are faced with a grand total which must reach a proportion of the total population, the enormity of which would be incredible even to the most biassed syphilologist.

The examination of the cerebro-spinal fluids of these patients would be interesting, and observations by Dean on 12 serum positive cases gave in only one case a positive reaction for syphilis. Although this number is too small from which to draw positive conclusions, it seems fair to state that this throws considerable doubt on syphilis as a prominent etiological factor, unless, indeed, it be argued that such cases be not suffering from actual syphilis, but from the effects of a toxæmia in utero in the cases of pregnant women suffering from occult or florid forms of the disease. The post-mortem appearances of brains of idiots and imbeciles do not lead us to conclude that syphilis is frequently present if we compare such appearances with those of brains of patients dying from congenital syphilis.

Since syphilis does not necessarily exert a selective action on the nervous system, such physical stigmata of degeneration as webbed toes, simian thumbs, deformities of the ears, undescended testicle, &c., should occur as frequently in congenital syphilitics who do not suffer from obvious mental defect as in those who are feeble-minded. My own experience is that this is not so, and I regard this observation as lending much support to those who assert that syphilis and mental deficiency are to a large extent coincident.

I am in entire agreement with Sir H. Bryan Donkin when he asserts that the Wassermann reaction alone is not sufficient evidence of syphilis as a causative factor in the production of congenitally enfeebled mental states, and that practical action on this observation alone would be unwise.

I am, Sir, yours faithfully,

W. REES THOMAS, M.D.Lond., M.R.C.P.Lond.

East Sussex Asylum, Hellingly, March 30th, 1914.

COOKING AND VITAMINES.

To the Editor of THE LANCET.

SIR,—In answer to "Civis" vitamines are substances of unknown constitution which exist in very small amounts in the natural foodstuffs, and are necessary, some for nutrition and others for growth. By processes of milling and canning food they are often removed or destroyed. Thus they are removed in the polishing of rice and in the preparation of white flour. Vitamines are soluble in water, and may be removed if food is stewed and the liquor thrown away. Those separated from rice polishings are destroyed by heating to 120° C., and diminished by boiling (Fraser and Stanton, confirmed by Funk). Those present in wholemeal wheat flour are not destroyed by baking. Mr. Martin Flack and I find pigeons will live perfectly well on wholemeal bread and water, but not on white bread and water. Professor B. Moore finds the vitamines which prevent scurvy are not destroyed by boiling. Professor Hopkins finds the addition of a very little milk to white bread, either boiled or raw, makes the latter a sufficient food. Mr. Martin Flack and I can confirm this. So far as the evidence goes, then, the vitamines present in milk are not destroyed by boiling, and there is no objection on this ground to the sterilisation of milk for infant feeding.

The illustrations are of pigeons fed by us: A for three weeks on white bread and water; and B after a week of wholemeal bread and water following the white bread diet. The difference is

remarkable enough. The question of white bread does not concern the well-to-do, who get their supply of vitamines from milk, eggs, fresh vegetables, &c., but it is of vital matter to the children of the very poor brought up on white bread, margarine, and tea. For them wholemeal bread is essential, and the nation suffers an enormous economic waste of labour spent uselessly in the preparation and bleaching of flour to make it white.

I am Sir, yours faithfully,

March 30th, 1914. LEONARD HILL.

To the Editor of THE LANCET.

SIR,—I am glad that Professor Halliburton has drawn attention to the fact that there are probably numerous kinds of "vitamines," and that, in the case of many articles of food, cooking does not destroy them.

In regard to milk the case is quite different. A good many years ago Emmett Holt showed that milk heated at 167° F. for 15 minutes could produce scorbutus in infants. Professor Halliburton is very vague in reference to "the lower temperatures used in pasteurisation." What temperature and what exposure? If the pasteurisation is effective, that is, if the organisms usually known as "pathogenic organisms," including the tubercle bacillus, are destroyed by the process, then undoubtedly the vital principle of milk is destroyed.

Professor Halliburton states "children have grown and do grow successfully on pasteurised milk." I have never seen a single child that has thrived on such a diet providing the milk has been really pasteurised and the child has received nothing but the milk. Of course, many children receive pasteurised milk, *plus* fruit juice, but these cases are surely out of court in the present discussion. Budin was fond of saying that he had never seen a single case of scorbutus as a result of the sterilisation of milk. But he never fed infants on sterilised milk. He almost invariably employed sterilised milk in conjunction with breast-feeding.

I am, Sir, yours faithfully,

Harley-street, W., March 27th, 1914. RALPH VINCENT.

CHANGES IN THE BLOOD IN SURGICAL SHOCK.

To the Editor of THE LANCET.

SIR,—Without desiring to capture your correspondence columns for the purpose of threshing out the vexed question of the pathology of surgical shock, I should be glad to reply to the letters of Mr. Lockhart Mummery and Dr. A. G. Auld.[1] I had read Mr. Mummery's interesting contribution on the fall of the specific gravity of the blood in shock cases, and am surprised to find that I somehow omitted to mention it. I am glad he calls attention to it. Although he still maintains his view that the vaso-motor centre is exhausted and the arteries dilated in shock, he does not advance any facts to prove the latter point, nor does he reply seriatim to the objections raised by Messrs. Malcolm, Seelig and Lyon, Porter, and others whom I quote, nor to my own observations upon his theory. Admittedly, it is a matter of opinion as to what we really include under a definition of surgical shock. I notice that Mr. Mummery considers that the "knock-out blow" is a state not of shock but of collapse. I believe that most authorities and text-books who draw a distinction between the two reserve the latter term for a condition of low vitality resulting from loss of fluid, or coming on gradually. In this sense the knock-out blow would be shock, not collapse. Of course, it might be regarded as a state of concussion; but what is concussion?

I am glad to see that Mr. Mummery is ready to agree with me that other centres besides the vaso-motor are depressed. The difference between our views, then, amounts to this: I believe that the great nerve nuclei around the fourth ventricle are depressed, the vaso-motor centre very probably suffering to some extent, and that the peripheral arteries are small. Mr. Mummery believes that the vaso-motor centre is particularly depressed, but other nuclei share in this to a less extent, and that the arteries are dilated. It is impossible to say, of course, exactly what nerve nuclei constitute the vaso-motor centre, so that the practical difference between our views of pathology is not very great. It follows from my view, however, that the pulse and blood pressure are not an infallible guide as to the presence or absence of shock, and that vaso-constrictors are by no means an infallible remedy.

Dr. Auld will not accept my analyses of CO_2 in venous blood as disproving the acapnia theory, because the arm was bandaged. As a matter of fact, the arm was *not* always bandaged, if the veins were already visible, but the results were just the same. In any case the bandaging was only for a minute or less, and in that time very little accumulation of CO_2 could take place. My figures, between 46 and 47 per cent., agree well with the results of animal estimations, 48–50 per cent.; in fact, they are lower. Some degree of cyanosis raised the CO_2 to a high figure, so that my method was capable of showing changes in its amount in the blood.

Dr. Auld further objects that Yandell Henderson analysed the arterial blood, whereas I used that from a vein, for obvious reasons. But Henderson also shows a fall in the CO_2 of the venous blood as well as the arterial. And, indeed, it is not possible that the CO_2 in the arterial blood should be low while that in the veins is normal. This would be to suppose the fall in the arteries is due to an excessively active excretion of the CO_2 by the pulmonary epithelium.

Since my lecture was compiled, Janeway and Ewing[2] have still further discredited the acapnia theory by showing that excessive artificial respiration in animals will induce shock even if the carbon dioxide content of the blood is kept high.

I am, Sir, yours faithfully,

Clifton, March 23rd, 1914. A. RENDLE SHORT.

PS.—Mr. Malcolm would have me revise my conclusion with regard to oligæmia, but I maintain that it is *impossible* for the blood volume to be seriously reduced whilst the specific gravity remains normal, unless there is profuse hæmorrhage or grave blood destruction. Crile's autopsies showed quite conclusively that the great veins in the abdomen and elsewhere were dilated. I do not think we can deny this on the ground of operation findings. If we exclude peritonitis, hæmorrhage, and toxæmic cases, what are there left in which we surgeons are accustomed to pass judgment upon the size of the great abdominal veins?

[1] THE LANCET, March 21st, 1914, p. 858.

INTRAMUSCULAR INJECTIONS OF QUININE.

To the Editor of THE LANCET.

SIR,—In the current number of THE LANCET you publish (p. 891) a description of a case of malarial coma treated by intramuscular injections of quinine, and the writer concludes with the advice that such a method of treatment is of special value in combating these forms of malaria. This advice is difficult to understand, because many experiments carried out for several years past have shown that quinine is absorbed with very great difficulty from muscle and subcutaneous tissue. I have recently discussed the point in the *Medical Times* of March 7th, and the *Journal of Tropical Medicine* of March 16th has a leading article upon the subject. In spite of the experiments referred to these injections still appear to be largely used, and the matter may be worth mentioning again because, in my opinion, the injections are quite possibly responsible for many of the fatalities which occur, though seldom, in malaria. The clinician imagines that he has given a dose sufficient to reduce the parasites below danger point; whereas, as a matter of fact, his dose generally remains *in situ*, and if the case is a dangerous one the parasites are allowed to breed unchecked in the patient's blood. Certainly, intramuscular injections are more useful if the quinine is given in high dilution; but the writer of the article mentioned does not refer to this point. Moreover, his dosage of quinine for subsequent treatment—namely, five grains every other day for at least three months—seems to me to be very small and will scarcely prevent relapses. Sir David Semple has shown the danger of tetanus attending injections, and it is to be noted that the case mentioned had some convulsions, which "closely resembled the clonic stage of epilepsy." I refer to the case only because I think that, unless there has been some recent information on the subject which I am not acquainted with, the profession should be warned against using these injections, except in some rare cases which need not be referred to here. Of course cases of malaria, even often in pernicious attacks,

[2] Annals of Surgery, February, 1914.

generally recover temporarily without any treatment at all, and it is this circumstance which leads so many clinicians to imagine that their treatment has done good. I am, Sir, yours faithfully,

Cavendish-square, W., March 30th, 1914. RONALD ROSS.

THE PREVALENCE OF SYPHILIS.

To the Editor of THE LANCET.

SIR,—At the conclusion of an independent investigation into the prevalence of sexual disease, and of syphilis in particular, in various parts of the world I have very naturally turned to a comparison between my own calculations (based entirely upon official returns) and the estimates and figures recently quoted by various authorities. With your permission I would invite attention to one or two apparent discrepancies which, not being a medical man, I confess that I am unable to understand.

In the course of a recent discussion at Wigan (reported in THE LANCET of March 21st), Dr. R. Prosser White is stated to have remarked that in Berlin, according to Erb, 120 per 1000 of the population were syphilitic. In 1900 the Prussian Board of Education instituted an inquiry on the subject and as a result it was shown that in Berlin, at a low estimate, 14·2 per 1000 adult males were infected with sexual disease as a whole. Allowing for a considerable under-estimation I still find it difficult even approximately to reconcile these two statements, for syphilis is in a proportion of about one-third to the total incidence of sexual disease. Dr. Prosser White also stated that in Copenhagen 280 per 1000 of the population had sexual disease. The official returns for 1911 give a figure of 5·8 per 1000 suffering from syphilis (presumably mostly recent cases), and this is probably over-estimated. Even calculating for standing cases and recognising the proportion of syphilis to all sexual disease it seems difficult to arrive at such a figure as 280 per 1000. The incidence for Berlin of sexual disease as a whole, recent and standing cases, comes to about 53 per 1000 upon a broad calculation.

In Dr. R. W. Johnstone's report to the Local Government Board I find the statement again: "Erb estimated that 12 per cent. of the population of Berlin is syphilitic. Fournier ..... estimates the proportion in Paris at 15 per cent." But I am unable to trace any such estimate by Fournier. The nearest I can find is the statement that he considers 13 per cent. of the adult *male* population to be "the figure which is nearest the mark." And in another chapter, "from 13 to 16 per cent." How is it possible to reconcile "150 per 1000 of the total population" with "130 to 160 per 1000 of the male population"? In an address delivered at the Paris Congress of the Royal Institute of Public Health it was stated by a well-known doctor that, upon expert opinion, "about 7 per cent. of the whole population of Melbourne was syphilitic, or 40,000 cases out of a population of 600,000." Upon this basis he calculated 500,000 cases for Greater London. But I find that the official estimate for Melbourne is about 5 per 1000, or, say, 3000 cases.

I could quote several other similar apparent discrepancies which I have discovered, but the above will probably suggest the need for some further consideration of the subject. Perhaps certain of your readers can assist me to elucidate the facts. In any event, may I venture to suggest that these figures should be uniformly quoted as so many per 1000 instead of per 100. This will save endless confusion, misprints, and other errors.

I am, Sir, yours faithfully,

A. CORBETT-SMITH.

Middle Temple, E.C., March 28th, 1914.

THE BIOLOGY OF TUMOURS.

To the Editor of THE LANCET.

SIR,—As a research worker on cancer I am very interested in Mr. C. Mansell Moullin's lecture, published in THE LANCET of March 21st, p. 803, and the deep thought that he has devoted to the subject when he created his theory must be appreciated. It is based on the statement that the reproduction of living matter is a sort of spontaneous instinct—"growth, ceaseless, continuous growth, is a property innate in all living tissues," and "the power of growth and reproduction is born in all living things with their birth, lives with them throughout their lives, and dies with them when they die. In the primitive forms of life this power knows no bounds."

I know that this impression, which seems obvious in the absence of evidence to the contrary, was generally accepted up to about five years ago. But since then a deal of experimental work has been done on the subject which shows that this impression is not necessarily a sound one—certainly not for all cells. Quite recently there has been obtained what I believe to be proof that, in certain cells at least, the impression is wrong, for these cells will not divide unless they absorb a definite chemical stimulus. The work done is this. J. Loeb showed that the development of the ova of sea-urchins could be stimulated by altering the salinity of the media in which they were resting. In 1909 I managed to induce cell division in individual human white blood cells by means of chemical agents containing certain chemical groupings, derived from the breaking down of dead tissues. The agents are called auxetics. Normal white blood cells do not appear to divide without these agents. This observation was confirmed by R. Ross and again by A. H. Drew. The point was subsequently proved by precise enumerative methods which demonstrated an increase in a leucocyte population brought about by auxetics, and recently similar figures of cell division have been seen occurring naturally in the blood in pernicious anæmia. Certain human epithelial cells were caused to divide in the same way, and Fantham induced cell division through four generations in entamœba coli by means of auxetics. This action was also demonstrated in the ova of ascaris megalocephala. Drew induced development in the spores of polytoma granulosa with auxetics; and, lastly, Cropper and Drew have proved this action on amœba ostrea, at the same time demonstrating—I believe conclusively, and I have seen the experiments—that these water amœbæ will not divide at all unless they obtain auxetics to stimulate them to do so.

These workers have succeeded in isolating single living amœbæ absolutely free from bacteria or all other forms of life. When the individual cells were placed in water they existed for a few hours and then died. When they were placed in pure water, plus a few dead bodies of pneumococci for food, they have lived now for four months, but they neither encyst nor—a most important point—do they divide; they merely seem to exist, crawling

about in the medium. When, however, one of these amœbæ is placed in pure water, plus food and plus an auxetic such as tyrosin or creatin in solution, it immediately undergoes cell division of the normal type and will continue to reproduce itself through many generations. The old impression seems to be disproved, therefore, as far as these classes of cells are concerned.

I may add that auxetics or substances which increase their action (augmentors) have been detected in all the industrial commodities which cause cell proliferation or predispose to cancer—namely, soot, tar, tar oils, pitch, certain petroleum fractions, grease, vaseline, aniline dyes, tobacco and its smoke, certain arsenic compounds, manure, briquettes, &c. One must therefore agree with Mr. Mansell Moullin's most important suggestion that the chemistry of the environment of the cells in the tissues ought to be taken into consideration when investigating the biology of tumours.

I am, Sir, yours faithfully,

The John Howard McFadden Research Fund, London, S.W., March 27th, 1914. H. C. ROSS.

RIDING ASTRIDE FOR WOMEN.

To the Editor of THE LANCET.

SIR,—Your annotation on the above subject is of interest to me, who as an old horseman of many years' experience have watched the development of the cross seat for ladies. I have never heard of local evils clearly traceable to this seat. The main objections are insecurity, which you mention but do not account for. I think not only the lack of the "crutches" but also the conformation of women tends to this; their thighs, as a rule, being round and fat, cannot grip the saddle like the long flat ones of the average man. The same formation in a man often gives the "washball seat," the opposite of a firm one. The high knee rills used by some ladies only partly remove the insecurity in leaping. "Dragging" is rare, but may happen in a cross saddle to lady or man if the stirrups are too large or too small, the safety bar is stiff, and in certain falls. In side saddle the modern apron habit and detachable stirrup make this risk negligible. Many hunting ladies have reverted to side saddle because of its infinitely greater safety.

You do not mention, but may agree in, the very common opinion that a good lady rider looks 80 per cent. better in side saddle than cross, and cross-saddle is really only suitable for young girls and spare females of an age to despise appearances. The only objection to side saddle is for the horse, as while the extra weight is largely compensated by the said weight being further back and less on the forelegs, yet the other trouble of sore backs from careless grooms and bad riders is always clamant and requiring attention and prevention.

I am, Sir, yours faithfully,

W. STEVENSON, M.R.C.P.Edin., F.R.C.S.Edin.

Crieff, N.B., March 28th, 1914.

THE LOCAL INCIDENCE OF ENLARGED TONSILS AND ADENOIDS.

To the Editor of THE LANCET.

SIR,—In your review in THE LANCET of March 28th on my paper on the above subject, published in the annual report of the school medical officer for East Sussex, writing as to the high percentage of cases among children in rural districts, you state that "the probability would seem to be that dirty and carious teeth are commoner in the relatively backward country districts and that enlarged adenoids and tonsils depend frequently upon chronic infection from the mouth."

The percentages found for different districts in the county varied from as high as 9 for some rural districts to 2·2 for Portslade, a poor working-class suburb of Hove, the fall in the percentage rate approximately coinciding with the increasingly urban quality of the district.

With regard to the explanation offered in your review, I would point out that no more care is bestowed on children's teeth, either in the matter of dental treatment or in the use of the toothbrush, in the urban than in the rural districts, and also that those who have inspected country children are constantly being struck by the fact that children in "backward" country districts who show signs of neglect and poor nutrition are possessed of remarkably good teeth.

The above-mentioned incidence rates are certainly remarkable, and some of your readers might offer explanations. A possible factor may be the difference in the type of population found in urban and rural districts.—I am, Sir, yours faithfully,

Ipswich, March 28th, 1914. GEORGE FINCH.

THE ADMINISTRATIVE CONTROL OF SMALL-POX.

To the Editor of THE LANCET.

SIR,—Referring to the review of my book on this subject in THE LANCET of March 21st, may I be allowed to correct something which I did not say, but which your reviewer implies that I did?

He speaks of "the proper authorities" as being the Local Government Board and the county council, thereby limiting, by inference, the application of my book to this country. That is not the case. No special country is mentioned or intended. The principles indicated are of world-wide application.

I am, Sir, yours faithfully,

March 26th, 1914. W. McC. WANKLYN.

THE NATIONAL INSURANCE ACT.

MEDICAL CERTIFICATES AND SICKNESS BENEFITS.

Mr. Runciman, in replying to a deputation from Approved Societies at Dewsbury on the subject of allowing sickness benefit for the first three days of sickness, said that already expenditure under the Act had exceeded what had been estimated by millions. He went on to say that the loose giving of medical certificates had penalised societies and the national scheme, and that the sooner it was put an end to the better, whether by an extended system of medical referees or by the setting up of a State Medical Service. He intimated that existing conditions could not be allowed to continue, and that the Government was watching the matter with grave anxiety. Mr. Runciman is probably aware that the medical profession is also alive to the march of events, and will have to be consulted as to future schemes.

LOCAL MEDICAL COMMITTEE FOR LONDON.

The Election Committee of the Metropolitan Counties Branch of the British Medical Association, which undertook the arrangements for the election of a Medical Committee for the County of London,

has declared the subjoined list of names to constitute the committee:—

Panel Practitioners.

Marylebone—J. P. Simpson.	Westminster—A. E. Cope.
Woolwich—A. E. Thomson.	St. Pancras—Thomas Marshall.
Greenwich—C. W. Hogarth.	Islington—J. J. A. Sherry.
Deptford—W. H. Payne.	Stoke Newington—A. Welply.
Lewisham—R. V. Donnellan.	Hampstead—E. Claude Taylor.
Bermondsey—B. A. Richmond.	Shoreditch—Major Greenwood.
Southwark—J. V. C. Denning.	City of London—J. J. Scanlan.
Lambeth—Herbert Taylor.	Holborn—M. J. Ryan.
Camberwell—G. B. Batten.	Finsbury—R. D Macgregor.
Wandsworth—A. C. B. Biggs.	Hackney—T. F. Keenan.
Battersea—J. T. Richards.	Bethnal Green—G. Henderson.
Fulham—John Fletcher.	Stepney—W. Owen Williams.
Chelsea—J. J. Orr.	Poplar—H. J. Cardale.
Hammersmith—J. A. Butler.	
Kensington—H. H. Mills.	
Paddington—J. A. Angus.	

Non-Panel.

Marylebone—C. W. Wirgman.

Woolwich, Greenwich, Deptford, Lewisham—No representative.

Bermondsey, Southwark, Lambeth, Camberwell—No representative.

Wandsworth, Battersea, Fulham, Chelsea—No representative.

Hammersmith, Kensington, Paddington, Westminster—W. H. Burnhill and Wilfrid Kingdon.

St. Pancras, Islington, Stoke Newington, Hampstead—No representative.

Shoreditch, City of London, Holborn, Finsbury—J. H. Porter and W. F. Roe.

Hackney, Bethnal Green, Stepney, Poplar—A. G. Southcombe, Gilbert Nicholson, and M. C. Corner.

Hospital staff representatives.—W. McAdam Eccles, T. W. Eden, James Galloway, V. Warren Low, Fred J. Smith, and G. R. Turner.

Poor-law medical officers.—H. E. Garrett.

Medical officers of health.—No representative.

Registered medical women.—Mina Dobbie.

A meeting of the committee will be held at Caxton Hall, Westminster, on Tuesday next, April 7th, at 3.30 P.M., when it is hoped that as many members as possible will be present. The business includes the appointment of a chairman and a secretary.

COMPLAINTS AGAINST LONDON PANEL PRACTITIONERS.

In dealing with a number of complaints by insured persons against practitioners on the panel the London Insurance Committee on March 26th expressed certain views as to the scope of treatment which should be covered by the agreements and other matters concerning the relations of doctors with persons on their lists, which it may be convenient briefly to summarise. It was held by the committee that the operation of cutting quinsies and the syringing of ears properly formed part of medical benefit; that a practitioner was "guilty of a grave indiscretion" who examined for menstrual conditions a woman patient not accompanied by a friend; that (in regard to the employment of an assistant) a practitioner was required by the terms of his agreement to provide all treatment for insured persons personally except when prevented by absence from home or other reasonable cause. In one case, described as an unusual one, a practitioner admitted having exercised hypnotism upon a patient for the purpose of inducing sleep; the friends said this was done without their being consulted. In respect of a practitioner who resided at a considerable distance from the surgery at which he purported to give treatment and who made no arrangements for the attendance of his patients when he was ill, the committee decided, unless the practitioner had disposed of his practice by June 30th, to make representations as to the desirability of his removal from the panel.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.

—At the First Professional Examination of the Conjoint Board, held on March 24th, 25th, 26th, 27th, and 28th, the following candidates were approved in the under-mentioned subjects:—

Chemistry and Physics.—George Kilpatrick Arthur, St. Bartholomew's Hospital; Percy George Calvert-Jones, University College, Cardiff; John Humphrey Thornton Challis and Joseph Clinton Collins, London Hospital; Arthur John Charles Eland, St. Bartholomew's Hospital; Abdallah Abd El Rahman Galal and George Henry Johnson, Middlesex Hospital; Abd El Aziz Abul Khair, King's College; Frank Lawrence, South-Western Polytechnic; John Eric Lewis, University College, Cardiff; John Stuart Lewis, St. Mary's Hospital; John Crawford William MacBryan, St. Bartholomew's Hospital; Guy Meadows, Guy's Hospital; William Griffith Owen, London Hospital; Christopher Stanley Parker, Charing Cross Hospital and King's College; Robert James Saunders, London Hospital; Walter Manley Savery, Middlesex Hospital; George Augustus Shelmerdine Shacklock and Cecil George Douglas Sigge, Guy's Hospital; Clement Price Thomas, University College, Cardiff; and John Henry Tighe, Birmingham University.

Chemistry.—Yenny Abdel-Massiah, King's College; Arnold Edgar Collis, M.A. Cantab., Middlesex Hospital; Louis Dinerstein, London Hospital; Rupert Vaughan Hudson, Middlesex Hospital; Reginald Edward Jenkins, London Hospital; David Joseph Heritage Jones, St. Mary's Hospital; Christopher Hugh Macklin, Middlesex Hospital; Alfred Yaphet Massouda, King's College; Gordon Millar, St. Bartholomew's Hospital; Arthur Arnold Osman, Guy's Hospital; Osbert Lacon Carden Sibley, Middlesex Hospital; Ernest Arthur Leland Sturridge, University College; Frank Alexander Leslie Sturridge, Middlesex Hospital; Ian Murray Thomson, Guy's Hospital; and Bertie Moorwood Tonkin, Guy's Hospital.

Physics.—Margarita Sargood Barfield, London School of Medicine for Women; Thomas Henry Ronald Davies, University College, Cardiff; Robert Erskine-Gray, Hartley College, Southampton; Malik Girgis, B.A., King's College; John Stephen Harvey James, Guy's Hospital; William Anthony Jolliffe, St. Bartholomew's Hospital; John Nesbitt Martin, Guy's Hospital; Ralph Kenneth Marwood, University College; George Bertram Monk, D.D.S. Michigan, Michigan and Guy's Hospital; Edward Hugh Frederick Morris, Guy's Hospital; Frank Young Pearson, University College, Cardiff; Charles Farrell Rainer, Charles Cecil Rowland, and James Athelstane Stedman, London Hospital; and Frederic Francis Wheeler, St. Mary's Hospital.

Biology.—Hussein Amin, Cairo and St. Bartholomew's Hospital; Hector Demetrius Apergis, Guy's Hospital; George Kilpatrick Arthur, St. Bartholomew's Hospital; Ralph William Codrington Ball, University College; Louis Walter Barber, Charing Cross Hospital and King's College; Margarita Sargood Barfield, London School of Medicine for Women; Eric John Swithin Bonnett, St. Thomas's Hospital; Martin Vincent Boucaud, St. Bartholomew's Hospital; Osmond Hayman Brown, Charing Cross Hospital and King's College; Finlay Cameron, M.P.S., King's College; Andre Alfred Casalis, John Humphrey Thornton Challis, and Joseph Clinton Collins, London Hospital; Alfred Innes Cox, Middlesex Hospital; Thomas Henry Ronald Davies, University College, Cardiff; Arthur John Charles Eland, St. Bartholomew's Hospital; Mohamed Abdel Kader El Hennawy, St. Mary's Hospital; Mohamed Zaky Aly Emery, Cairo and University College; Frederick Knowles Escritt, Guy's Hospital; Herbert Reginald Evans, Middlesex Hospital; Tyrrell George Evans, St. Bartholomew's Hospital; Donald Charles Farquharson, St. Mary's Hospital; Wyndham Brookes Farrington, Guy's Hospital; Francis Malcolm Timothy Flintan and Abdallah Abd El Rahman Galal, Middlesex Hospital; Blanche Sutton Gardiner, London School of Medicine for Women; Richard Hilliard, London Hospital; Robert John Hodgkinson, Guy's Hospital; Anthony Bancroft Isaacs, St. Thomas's Hospital; Evelyn Hope Johnson, Manchester University; George Henry Johnson, Middlesex Hospital; William Anthony Jolliffe, St. Bartholomew's Hospital; David Joseph Heritage Jones, St. Mary's Hospital; Jeffrey Woodward Jones, B.Sc. Vict., University College, Cardiff; Albert Victor Lopes, St. Bartholomew's Hospital; George Bertram Monk, D.D.S. Michigan, Michigan University and Guy's Hospital; Edward Hugh Frederick Morris, Guy's Hospital; Clement Nicory, St. Thomas's Hospital; Hussein Nosrat, University College; Edmund Jacobsz Papenfus, St. Thomas's Hospital; Christopher Stanley Parker, Charing Cross Hospital and King's College; Eugene Arthur Pearson, London Hospital; Frank Young Pearson, University College, Cardiff; Charles Burton Phillips, Durham University; Charles Farrell Rainer and Robert Douglas Finch Robertson, London Hospital; Enoch Sanders, Liverpool University; George Augustus Shelmerdine Shacklock, Guy's Hospital; Kenneth Eden Shellshear, St. Bartholomew's Hospital; Stuart Walter Southwood, Birkbeck College; George Ernest Spero and Samuel Leon Szpigner, London Hospital; Clement Price Thomas, University College, Cardiff; Graham McKim Thomas, Guy's Hospital; John Henry Tighe, Birmingham University; Herbert Edward Williams, London Hospital; Roger Gilbert Wilshere, Guy's Hospital; Vyvian Deane Wyborn, Charing Cross Hospital and King's College; and Claude Young, Middlesex Hospital.

VICTORIA UNIVERSITY OF MANCHESTER.—At examinations held recently the following candidates were successful in the subjects indicated:—

THIRD M.B. AND CH.B. EXAMINATION.

Pathology.—H. W. Bennett, Robert Chevassut, Edgar Granger, J. F. C. O'Meara, and John Rigby.

SECOND M.B. AND CH.B. EXAMINATION.

E. R. Gilmore and C. R. Sandiford.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.

R. B. McKail and J. L. Stephenson.

FIRST M.B. AND CH.B.

Part I., Inorganic Chemistry and Physics.—Nooman Abdoh, T. H. Almond, Sybil Bailey, Thomas Colley, Herbert Dickie, Percival Fildes, J. B. Higgins, Fahim Isaac, G. H. Lees, J. P. Mills, Terence O'Brien, Kathleen O'Donnell, H. J. Porter, and Lazarus Samuels.

Part II., Biology.—T. H. Almond, Sybil Bailey, G. H. Bowman, Frances G. Bullough, Thomas Colley, S. E. Critchley, Herbert Dickie, Percival Fildes, G. H. W. Gough, F. L. Heap, Fahim Isaac, A. W. Kirkham, G. H. Lees, J. P. Mills, Terence O'Brien, Ellis Pigott, H. J. Porter, Lazarus Samuels, A. G. Saunders, L. J. Schwartz, and V. T. Smith.

Chemistry.—G. H. W. Gough, V. T. Smith, Marie Wardman, and Ethel D. Willis.

Physics.—R. J. Allison, Francis G. Bullough, James Charnley, and L. J. Schwartz.

THIRD B.D.S. EXAMINATION.

H. H. Stone.

DIPLOMA IN DENTISTRY.

Third Examination.—Amos Brooks, Benjamin Brown, H. J. F. Green, P. J. Kieran, J. E. Magraw, Harry Morton, and Aquila Whitehead.

Second Examination.—Dental Metallurgy.—G. P. Anderson, Ernest Bailey, Joseph Clegg, Arthur Duffy, Austin Furniss, George Furniss, W. S. Hartley, T. F. Healey, H. B. Ivers, W. K. Lever, and G. C. Royley.

Dental Mechanics.—Ernest Bailey, Arthur Duffy, Austin Furniss, George Furniss, and W. S. Hartley.

First Examination.—B. C. Betts, John Green, H. A. Parkinson, A. C. Tattersall, C. H. Travis, and Oscar Vickers.

Physics.—James Kershaw and E. G. Parkinson.

Chemistry.—Frank Lewis.

UNIVERSITY OF DURHAM: FACULTY OF MEDICINE.—At the third examination for the degree of Bachelor of Medicine held recently the following candidates were successful:—

Materia Medica, Pharmacology and Pharmacy, Public Health, Medical Jurisprudence, Pathology, and Elementary Bacteriology.—Cyril Charles Herbert Cuff (second-class honours), Arthur Farrell Renner Dove, Geoffrey Bede Egerton, and George Irving, College of Medicine, Newcastle-upon-Tyne; Herbert Arnold Lake, University College Hospital; Grace Winifred Pailthorpe, London School of Medicine for Women; Roland Sells, Guy's Hospital and College of Medicine, Newcastle-upon-Tyne; and Harold Williamson, Charing Cross Hospital.

Pathology and Elementary Bacteriology.—Mary Russell Campbell, Reginald Arthur Hooper, William Oxley Forster Sinclair, Alfred Cresswell Taylor, and Robert Welch, College of Medicine, Newcastle-upon-Tyne.

Materia Medica, Pharmacology and Pharmacy, Public Health, and Medical Jurisprudence.—Lionel Basil Frere and Harold Kingston Graham-Hodgson, College of Medicine, Newcastle-upon-Tyne; and Douglas Oliver Richards, Guy's Hospital.

UNIVERSITY OF ABERDEEN.—At the graduation ceremony on March 25th the following degrees, among others, were conferred:—

Degree of Doctor of Medicine (M.D.).—Charles Claud Twort, George Ernest Shand, William Beedie, Douglas Gordon Cheyne, Donald Munro Maciver, and Arthur George Troup.

Degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.).—Archibald Stirling Kennedy Anderson, Ian Gordon Bisset, John Gatherer Brown, Alex. Elmslie Campbell, Alfred Wm. Harper Cheyne, Elizabeth Esther Elmslie, Archie Reith Fraser, James Fraser, Colin More Geddie, Edward Gordon, George Alex. Gordon, Robert Grey, Alex. William Henry, Cecil Beresford Hogg, Thomas Miles Moss Horsfall, John Kirton, Helen Lillie, Kenneth Pirie Mackenzie, Hector Mortimer, John McGregor Hartley Reid, George William Riddel, George Lee Ritchie, James Lind Smith, Philip Wilson Stewart, Andrew Topping, Gilbert Enos Valentine, Alexander James Will, and James Walker Wood.

Diploma in Public Health.—Douglas Gordon Cheyne, James Elder, Angus Forsyth Legge, Harry James Rae, and William George Thomson.

TRINITY COLLEGE, DUBLIN.—At examinations held recently the following candidates were successful:—

M.B. EXAMINATION.

Ernest E. Lavy, Joseph A. Quin, Charles P. Kelly and Joseph C. A. McCalden and Edgar L. F. Nash (equal), William R. L. Waters, Fredk. C. Atkinson-Fleming and Nicholas H. H. Haskins (equal), George Buchanan, Theodore W. Allen, Thomas V. Oldham, Edward H. P. Murphy, George A. Bridge and Michael J. Ryan (equal), Robert J. B. Madden and Henry I. G. Rutherford (equal), and Joseph S. English and William Foot (equal).

B.CH. EXAMINATION.

*Robert R. G. Atkins, *John D. Oliver, Thomas D. Power, William H. R. McCarter, Frederick G. Flood, John T. McCullagh and Quentin V. B. Wallace (equal), Trevor A. Lawder and Robert J. B. Madden (equal), Arthur Newton-Brady, Thomas V. Oldham, Hawtrey W. Browne, Henry C. D. Miller, Frederick C. Atkinson-Fleming and Rupert C. Lowe (equal), Joseph A. Quin, and Thomas J. L. Thompson.

B.A.O. EXAMINATION.

*Philip W. McKeag, *Dorothy E. Webb, Henry C. D. Miller and Bertrand C. O. Sheridan (equal), Edward P. H. Vickery, Walter J. Ronan, Arthur Newton-Brady, John S. Dockrill, Edward H. P. Murphy, William A. Ryan, and Robert L. Vance.

FINAL MEDICAL EXAMINATION.

Part I.—*Eugene J. McSwiney, *Norman McC. Boyce and *Frederick Harris (equal), *David Hennessy, *Eric W. Craig, *Charles D. Pile, Godfrey Bateman, John M. Ryan, Christopher C. Albertyn and Arthur C. Bateman and Edwin Boyers (equal), Evelyn Ross and William E. Tyndall (equal), Maurice B. King, Cecil McL. West, Herbert S. Collins, Douglas C. Pim, Edward J. Mannix and Andrew W. P. Todd (equal), Edmond Robinson, William B. Cathcart, Frederick R. S. Shaw, Sydney W. Fisher and George Stanton (equal), and Arthur G. Fisher.

Materia Medica and Jurisprudence.—William B. Walker and James E. Jameson.

Pathology.—Albert W. D. Magee and Cecil G. Sherowitz.

INTERMEDIATE MEDICAL EXAMINATION.

Part I.—Edward O. Marks, Thomas P. Chapman, Robert T. Stoney, Alan G. Wright, Francis J. G. Battersby and Cyril R. E. Littledale (equal), Rupert Gordon, Frank McG. Ferguson, Louis Blumberg, William Garde-Browne and Edward Parker (equal), Gilbert Marshall, Edward Lipman, and James D. Leahy.

Part II.—*Esther V. Adderley and *Alan F. Grimbly (equal), *Robert C. B. Ramsay, Joseph W. Bigger, George Joughin and John A. C. Kidd and Robert B. N. Smartt (equal), Clotilda B. Bevis, Alfred L. Wilson, Cecil F. Brady, Charles O. J. Young, Charles H. Comerford and Alfred H. Price (equal), Arthur H. Watson, Eric E. Beatty and Thomas W. Sweetnam (equal), Thomas Stanton, Andries A. L. Albertyn, Mortimer McG. Russell, Thomas G. Roche, George Doran and Joseph H. C. Walker (equal), Roland H. Graham, and Edmund D. T. Hayes.

INTERMEDIATE DENTAL EXAMINATION.

William B. Parr.

PRELIMINARY SCIENTIFIC EXAMINATION.

Chemistry and Physics.—Harry L. Parker, Patrick B. Moloney, George Davis, Michiel Dippenaar, Ethel M. Luce, Eric W. S. Deale, Arthur I. Steyn, Pieter J. Swanepoel, George F. Fitzgerald, John B. McGranahan, Fleetwood W. P. Sullivan, Frederick J. Dymoke and Henry L. Hanna (equal), George C. Ballentine, and Charles G. Ambrose and George E. Healy (equal).

Botany and Zoology.—Richard P. Tobin, James Griffin, George W. Holmes, Lionel Wigoder, and Edward J. Cooper.

PRELIMINARY SCIENTIFIC DENTAL EXAMINATION.

Charles H. Herbert.

* Passed on high marks.

QUEEN'S UNIVERSITY OF BELFAST.—The following degrees have been obtained:—

M.B., B.CH., AND B.A.O. DEGREES.

Thomas Moorhead Adamson, William Walter Allison, William Faith, James McKee Ferguson, William Gault, Henry Albert Gillespie, William Sloane Lynd, William MacDermott, Vincent Magee, Verus Calvin Montgomery, Matthew Neilson, Edith Robinson, Robert Stewart Ross, Herbert Reid Sinclair, and William James Smyth.

DIPLOMA OF PUBLIC HEALTH.

Charles Alexander, William Frier, and Samuel Ireland Turkington.

A MEDICAL MAGISTRATE.—Dr. P. J. Cullinane, of Bantry, has been appointed to the commission of the peace for the County of Cork.

BERI-BERI AT FALMOUTH.—The medical officer of health for the Falmouth and Truro port sanitary authority (Dr. G. E. Lanyon), in his annual report for 1913, states that the principal disease met with amongst the crews of the deep-sea vessels was beri-beri, and one death occurred from it.

GLASGOW ROYAL INFIRMARY.—As in former years summer classes for post-graduation work will be held during May. During the first fortnight courses are offered in clinical medicine, diseases of the throat and nose, clinical examination of urine and digestive products, hæmatology, electrotherapeutics, anæsthetics, and diseases of the ear in children. During the second fortnight courses are offered in clinical surgery, operative surgery, surgical diagnosis, urology, clinical gynæcology, electrotherapeutics, and diseases of the ear in children. A syllabus giving full details may be had on application to Dr. J. Maxtone Thom, superintendent at the infirmary.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Midwives (Scotland) Bill.

Mr. BARNES has presented a Bill in the House of Commons with the design of securing the better training of midwives in Scotland and of regulating their practice. It has been read a first time. Associated with Mr. BARNES in the introduction of the Bill are Mr. AINSWORTH, Mr. ARTHUR HENDERSON, Mr. R. HARCOURT, Mr. DUNCAN MILLAR, and Dr. CHAPPLE.

Death Registration and Burials Bill.

A Bill "to amend the law relating to the registration of deaths and to burials" has been introduced in the House of Commons by Mr. RADFORD. It was read a first time.

Children Bill.

Mr. GOLDSTONE had the support of several Members of the Labour Party in the House of Commons in introducing a Bill "to provide for the more effectual treatment and prevention of destitution and sickness among children, and to regulate the hours and conditions of labour among children."

HOUSE OF LORDS.

WEDNESDAY, APRIL 1ST.

Midwives (Scotland) Bill.

A Bill was read for the first time, presented by Lord BALFOUR of BURLEIGH, "to secure the better training of midwives in Scotland and to regulate their practice."

HOUSE OF COMMONS.

WEDNESDAY, MARCH 25TH.

Excessive Sickness.

Replying to Colonel BURN, Mr. ORMSBY-GORE, and other Members, Mr. WEDGWOOD BENN stated that the cost of the inquiry of the Departmental Committee into excessive sickness and deficiencies under the National Insurance Act was approximately £1800. The evidence was being printed for the convenience of the members of the committee, but the question of publication would be considered when the evidence was complete. Both the Scottish and Welsh Insurance Commissioners were taking steps to obtain full information as to the sickness benefit claims in their respective countries.

The Tuberculosis Order, 1913.

Answering Mr. ASTOR, Mr. HERBERT SAMUEL (President of the Local Government Board) said: Under the Tuberculosis Order, issued in 1913, by the Board of Agriculture and Fisheries, the local authorities have power to cause a cow giving tuberculous milk to be seized and slaughtered.

The Bathing of Lunatics in Workhouses.

Mr. HILLS asked the President of the Local Government Board whether he would draw up model regulations for bathing healthy inmates in workhouses; whether the regulations for bathing lunatics and idiots in workhouses framed by the Lunacy Commissioners, and recommended by the Poor-law Board in a circular of 1870, were suspended by the new order; whether under the new order the codes for bathing lunatics, idiots, and infants would require the approval of neither the Local Government Board, nor of the Lunacy Commissioners, nor of the guardians, nor would even be sent to the Local Government Board for examination; and whether he would make an amending order providing for the express approval of the Local Government Board both to the regulations and codes.—Mr. HERBERT SAMUEL answered: The regulations framed by the Lunacy Commissioners in 1870 to which the honourable Member refers were never binding upon Poor-law guardians. They were only recommended for their consideration, and a similar recommendation was included in the circular which accompanied the new order. The regulations referred to are not suspended by the new order. The bathing of sick persons, lunatics, and infants will under the new order be subject to the directions of the medical officer who is responsible for their care and treatment. If new regulations are made by the guardians they will be sent to the Local Government Board and may be disallowed by the Board. All those regulations which had so far been submitted under the provisions of the new order either reproduce or improve upon the recommendations contained in the minute of 1886. In the circumstances I see no reason for taking the course suggested in the question.

Uncertified Deaths in England and Wales.

Mr. HERBERT SAMUEL informed Mr. RADFORD that the number of deaths in England and Wales the causes of which were not certified was 6333 in 1912 and 6160 in 1913.

Cases of Plumbism.

Mr. EDGAR JONES asked the Home Secretary whether any reduction had taken place in the number of cases of plumbism since the introduction of the new regulations; whether that reduction was more marked in some districts than in others; and, if so, what was deemed to be the cause of the reduction.—Mr. MCKENNA furnished the following written answer: I understand my honourable friend to refer to the regulations for smelting of metals. I am glad to say that the figures for 1913 of cases of lead poisoning in this industry are less than half those for 1912—26 as compared with 56—and with the exception of 1905 are the lowest on record. The decrease, which is most marked in South Wales, is attributed largely to the periodical medical examination of the worker provided for in the regulations.

THURSDAY, MARCH 26TH.

Panel Practitioners and Fees.

Sir WALTER ESSEX asked the honourable Member for St. George's-in-the-East whether a medical practitioner on the panel was entitled to receive from a patient on his list a fee in addition to that provided under the National Insurance Acts.—Mr. WEDGWOOD BENN answered: No, sir; not in respect of medical benefit.

Insured Persons and Lady Practitioners.

Mr. JOWETT asked the honourable Member for St. George's-in-the-East, as representing the Insurance Commissioners, whether it had come to his knowledge that women who were forced to pay for medical attention and treatment under the National Insurance Act, and who had never been attended by men doctors in the past, were being refused permission to make their own arrangements for medical attention and treatment under Section 15 (3) of the National Insurance Act, 1911, although there was no woman doctor on the panel of doctors of their Local Insurance Committee; whether the Bradford Insurance Committee was one of the committees so refusing; and what action he intended to take in order to secure the medical benefit for insured woman who were unwilling to consult with men doctors concerning their individual ailments.—Mr. WEDGWOOD BENN replied: My right honourable friend is not aware of any such general action on the part of Insurance Committees. He is informed that in two or three cases the Bradford Insurance Committee refused permission to applicants to make their own arrangements with a woman doctor, but I believe that in none of these cases was the ground for the application as stated by my honourable friend.

The Drug Fund.

Answering Mr. HAMILTON, Mr. WEDGWOOD BENN said: We are informed that in the case of about 22 Insurance Committees in Great Britain the chemists' accounts presented are stated to be in excess of the drug fund at present available; but it cannot as yet be stated whether there will in fact be any deficiency.

Mr. WATSON asked the honourable gentleman whether the panel chemists in Scotland would be paid their accounts in full for the first three months of the present year and for the year 1913.—Mr. WEDGWOOD BENN replied: Any payment in respect of the quarter ending on April 11th will be an advance in anticipation of the annual settlement, and the accounts for this quarter are, of course, not yet due. As regards the year 1913, I have nothing to add to previous replies.

Insured Persons.

In reply to Sir WALTER ESSEX, Mr. WEDGWOOD BENN wrote: The total membership of Friendly Societies, including duplicates, was in December, 1911, approximately 6¾ millions. The number of persons insured under Part I. of the National Insurance Act, 1911, without duplicates, is nearly 14 millions. The amounts issued to Approved Societies and Insurance Committees in the United Kingdom up to Jan. 11th, 1914, are as follows: Issues to Approved Societies for benefits, £7,605,000; administrations, £3,675,000. Issues to Insurance Committees for medical benefit, £4,502,000; sanatorium benefit, £801,000; administration, £252,000. Payments to deposit contributors in sickness and maternity benefits, £18,100.

Treatment of Tuberculosis in Scotland.

Major HOPE asked the Secretary for Scotland to state the amount which had been paid in Scotland up to date for the erection or maintenance of institutions for the treatment, under the National Insurance Act, of tuberculous patients out of the capital grant of £1,500,000, out of funds available for sanatorium benefit under the National Insurance Act and out of rates.—Mr. MCKINNON WOOD furnished the following written reply: Only a nominal amount has yet been issued in Scotland out of the capital grant of £1,500,000, but schemes for the erection of institutions by local authorities are approaching completion

which will shortly involve the issue of large amounts from the grant. With regard to the other portions of the question, the information is not available in a form which enables the expenditure for the particular purposes mentioned to be distinguished from expenditure on sanatorium benefit generally. I am informed, however, that the expenditure by Insurance Committees in Scotland under Section 16 (2) of the National Insurance Act, 1911, towards sanatorium benefit amounted to £6180 for the period from July 15th, 1912, to Jan. 11th, 1913, and to, approximately, £57,000 for the period from Jan. 12th, 1913, to Jan. 11th, 1914; while the total expenditure by local authorities for the treatment of tuberculous cases in hospitals and sanatoria for the period from July 15th, 1912, to March 31st, 1913, was £32,488, and their estimated expenditure for the period from April 1st, 1913, to March 31st, 1914, is, approximately, £80,000. One-half of the two last-mentioned sums is chargeable to the rates.

Control of the Milk-supply.

Mr. ASTOR asked the President of the Local Government Board whether at present any control was exercised by the Board over the use of such descriptions as invalids' milk, nursery milk, milk from cows free from tuberculosis, and certified milk, which were usually offered for sale at prices exceeding the price of ordinary milk.—Mr. HERBERT SAMUEL replied: The answer is in the negative.

Mr. ASTOR: Is there any reason to believe that the milk sold under those names is either pure or safe?—Mr. HERBERT SAMUEL: I cannot express an opinion upon the matter. I do not think that there has been any exhaustive inquiry into the question, and I do not think any tests have been made by any official authority.

Mr. ASTOR asked the right honourable gentleman whether his attention had been drawn to the investigations conducted by Dr. Philp Mitchell and Mr. Stiles in regard to the causation of tuberculous cervical glands in infants and children residing in Edinburgh; whether 90 per cent. of the cases examined had been traced to cows' milk containing bovine tubercle bacilli; and whether he proposed to take any steps for the better protection of children from the infection of tuberculosis conveyed by milk.—Mr. HERBERT SAMUEL answered: I am aware of the investigations referred to. Similar investigations have been made on behalf of the Local Government Board which indicate that tuberculosis in children is often clearly connected with the consumption of tuberculous milk. I am now engaged in the preparation of legislation to deal with this and other sources of infection and with the adulteration of milk, and hope to be able to make a statement with regard to it at an early date.

Vice-Regal Commission on Irish Milk-Supply.

Mr. BRADY asked the Chief Secretary to the Lord Lieutenant of Ireland whether he had considered the final report of the Vice-Regal Commission on the Irish Milk-Supply, and whether he was prepared to give effect to the recommendations contained in the report, particularly in view of the endorsement these recommendations had received from the corporation of Dublin, the Dublin county council, the Pembroke county council, and many other public bodies in Ireland.—Mr. BIRRELL wrote in reply: This matter is engaging the attention of the departments concerned, and I shall not be in a position to say whether it will be possible to give effect to all the recommendations of the report until I have received and fully considered the reports of these departments.

The Administration of the Insurance Act.

On the motion that the House should go into Committee of Supply on Civil Service estimates,

Sir CLEMENT KINLOCH-COOKE moved as an amendment "that in the opinion of this House the working of the National Insurance Act shows that, while the cost to the State increases, the benefits held out to insured persons are in many instances not forthcoming, and there is reason to believe in the near future that the situation will become more acute and a still larger number of insured persons will suffer."

Mr. CHARLES BATHURST, in seconding, said that there were certain respects in which both medical benefit and sickness benefit did not, in his opinion, come up to the expectations formed at the time of the passing of the National Insurance Act. As regarded medical benefit the complaint was threefold. There was firstly the inadequacy of medical treatment owing to the regulations of the Commissioners; secondly, the inadequacy of treatment owing to the lack of proper organisation of the medical service; and thirdly, the total failure in certain cases to obtain medical benefit owing to the complexity of administration. Quite recently a regulation of the Commissioners had been issued to this effect, that medical benefit should include only such treatment as was of a kind which could consistently with the best interests of the patient be properly undertaken by a general practitioner of ordinary professional competence and skill. That regulation was in his opinion *ultra vires* of the National Insurance Act and went quite beyond the powers which the National Insurance Commissioners were entitled to exercise under that Act. The effect of the Regulation was that only the simplest form of medical benefit could be provided by the panel doctors, and anything beyond those simple forms of treatment was treated as an extra which had either to be paid for by the patient or obtained through charitable institutions. Such cases as affections of the tonsils, adenoids, inflammation of the eyes, and the like, if a special fee was not asked for, were directed to go to hospital. The honourable Member complained that no proper provision was made for diagnosis under the Act. The panel patients were dealt with too hastily, and this, he said, had serious results. He criticised the confusion which had arisen in regard to medical tickets. He asked whether the Commissioners could not do something to provide skilled nursing for insured persons. He suggested that there should be a special provision of surgical treatment in all but simple cases. There should be provision of facilities for confirming doubtful diagnoses and assisting the panel doctors with a second opinion in difficult cases. There should be better organisation of medical service and the provision of more doctors in congested areas. In these areas there were needed convenient and sanitary dispensaries in place of the small, often overcrowded, and stuffy waiting-rooms in which persons had in some cases to wait for hours before they received attention. Simplification of the somewhat complex administration of the National Insurance Commissioners was required.

Mr. ASTOR dealt at length with the administration of sanatorium benefit. He stated that there were persons suffering from tuberculosis who ought to have treatment in institutions, but were receiving domiciliary treatment because there were not enough beds or the beds were not ready. If the beds in existence were really sufficient, what was the use of continuing to spend money on more sanatoriums? But the fact was that there was not nearly enough accommodation in sanatoriums or hospitals or other institutions for insured persons. One of the first essentials in dealing with tuberculosis was the provision for adequate inspection of the sputum. But there were 37 local authorities that had not yet appointed tuberculosis officers. He thought that many tuberculous patients were getting inadequate treatment, and many of those who went to institutions did not remain long enough.

Dr. ADDISON said that personally he was exceedingly surprised that the number of beds provided for tuberculous patients was so great, and the fact that 20,000 persons had been already treated in institutions was a most remarkable achievement. One result of the Act had been the introduction of more medical men into industrial areas. Under the old system the medical men practising in these areas shelved their responsibilities on to the hospital. He wanted to see them stirred up in order that they might become more efficient professional men. It had been stated that the Act had crippled the resources of the hospitals. He would like to know on what that statement was based. So far as he had been able to ascertain, the effect of the Act had not been to cripple the resources of these institutions. It might be possible that in some cases where the income of the hospital was largely derived from workmen's contributions there might have been a falling-off since the Act came into force. It had been suggested that certificates were granted on frivolous grounds and in a loose manner. At various times there might have been some substance in that complaint, but a little time must be given to people to put their house in order. This was a matter to which medical men and medical committees were turning attention, and they were making it uncommonly uncomfortable for anyone who was not carrying out this duty with proper care. The General Medical Council had issued a serious warning that the issue of certificates in an improper manner would be considered as a serious ground of complaint against a medical man. It was easy to cast a stone against a man who issued certificates in what appeared to be loose terms, but honourable Members had to remember the position when the person who was ill, especially if it was a woman, was not particularly anxious that the full description of the ailment should appear on the medical certificate. He thought that it might be an improvement if some central machinery could be created whereby, while a proper disclosure was made, it could be so arranged that the certificates could be dealt with in such a manner that the medical man would feel quite free to put everything without reserve upon the certificate. As to the amount of malingering, he should say that the number of deliberate cases was relatively trivial. He quite agreed that there was much still lacking in the matter of special services and in the necessary arrangements for making diagnosis. To ask the Government to set up a wholly perfect machinery of laboratories with special facilities for consultations and so on would be simply to ask the impossible.

Mr. H. FORSTER dealt at length with sanatorium benefit, and said that even if the number of persons suffering from

tuberculosis in England was 100,000 it was not the case that 5000 beds in institutions was a sufficient provision for them.

Mr. HERBERT SAMUEL pointed out that he had dealt with sanatorium benefit on Tuesday night. It was, however, now said that if the accommodation for insured persons in sanatoriums was sufficient the Government ought not to propose to spend £1,500,000 on the provision of further sanatoriums. He would point out that the grant was needed to enable health authorities to make provision for the whole population, and it was necessary to replace temporary accommodation by permanent accommodation. The average duration of the institutional treatment given to all patients was necessarily low, owing to the fairly large proportion who were admitted for observation or instructional purposes. The Astor Committee had recommended that 2100 beds should be provided in sanatoriums and a like number in hospitals for insured persons suffering from tuberculosis. At present 5145 were available in sanatoriums approved by the Local Government Board, and 2580 in hospitals. There were districts in which further efforts should be made and were being made. Taking the country as a whole, the number of beds available was statistically adequate for the number of tuberculous persons among the insured population. The Local Government Board would not be content until every district had within reasonable reach of its own locality full and adequate accommodation of a permanent and not merely of a temporary kind for its own population.

Mr. WEDGWOOD BENN said that points had been raised as to the adequacy of the medical service-nursing and so on. He made bold to say that no one when the Insurance Act was before Parliament two years ago was under the impression that for a contribution of 4*d*. a week the insured persons suffering from every sort of illness, however complicated and difficult, would receive medical or surgical attention. Did the honourable gentleman opposite say that 4*d*. a week was intended to cover complicated and difficult cases in which surgical treatment and appliances were necessary?

Mr. HILLS: Treatment adequate for the disease.

Mr. WEDGWOOD BENN: Does the honourable gentleman opposite say that 4*d*. is sufficient for critical operations?—Sir CLEMENT KINLOCH-COOKE: I do not say critical operations, but all other cases certainly.

Mr. WEDGWOOD BENN: The words "adequate treatment" are not a description of medical benefit. What the Act contemplated and what everybody contemplated was that the same treatment as was given by the family doctor or general practitioner to the family of a man with £160 a year should be given to everybody insured under the Act. Honourable Members knew that they would not think of asking the family doctor to do things at critical moments without a second opinion or the assistance of a specialist. It was impossible to consider that an Act levying contributions of this kind should have contemplated assistance of that nature to every insured person. He did not recollect that that was intended at the time, and he did not think anybody in the House believed that it was.

Mr. H. FORSTER: The Chancellor of the Exchequer expressly insisted on modern methods of exact diagnosis.

Mr. WEDGWOOD BENN repeated that what the Act contemplated was to provide a general practitioner for everybody insured under it. The mover of the amendment put the point that a certain number of persons had not selected their doctor, and consequently their names were not on the lists of any medical man, and he complained because the money in respect of those persons, 7*s*. per head, was being paid to doctors who had not earned it.

Sir CLEMENT KINLOCH-COOKE: I made no complaint of that. What I said was, What has become of the money?

Mr. WEDGWOOD BENN: The money is there for the doctors who are on the panel. The honourable gentleman seemed to think that a doctor was paid 7*s*. for attending a sick person, and he did not seem to understand that the doctor was paid 7*s*. per head for persons sick or well all alike. As to the question of nursing, he was not quite sure whether it was within the competence of an Insurance Committee under its powers to set up nursing associations. It was within the power of a society to contribute to associations for that purpose, and perhaps if societies turned their eyes in that direction something of the kind which the honourable Member for Wilton (Mr. Bathurst) desired might be done. An honourable gentleman opposite had spoken about deficiencies in the drug fund, and a letter had been read from the Leeds Committee complaining that there was not enough money to meet the charges. He did not gather whether it was an official or a private communication.

Mr. FORSTER: It was written on behalf of the Committee.

Mr. WEDGWOOD BENN said that the fact of the matter was that in this case of the drug fund the regulations and the agreement with the chemists provided and always contemplated that the tariff which had been drawn up should be regarded as a tariff and not as the schedule of fixed prices. It was on that basis that the tariff was agreed to by those who made the negotiations when the Act first came into force. It was on that basis that the regulation provided for scrutinies of the prescriptions with the bills by the members of the medical profession and the chemists respectively. In the case which the honourable Member for Salisbury (Mr. Godfrey Locker-Lampson) was pressing constantly in the House, there was such a scrutiny going on at the present time. The honourable Member complained on Tuesday night that he (Mr. Wedgwood Benn) did not answer his point. Unfortunately, time did not permit for everything to be said that honourable Members desired to say, but the fact of the matter was, as regarded Salford and Manchester, where a deficiency between the bills and the amount available was apparent, the scrutiny was proceeding by a joint committee of the chemists and doctors, and the chemists themselves had entered into an agreement for a fresh year with the Committee on the understanding that the prescriptions would be scrutinised by this joint committee. That scrutiny was now proceeding, and it was therefore absolutely premature at the present moment to make any statement as to what might be done. Moreover, the honourable gentleman opposite who had raised this matter was not authorised by any official body of chemists in Manchester or Salford to make such representations. Then, again, whereas in some districts there appeared to be a deficiency until scrutinies had taken place, there was, in fact, in many districts a surplus and some part of the floating 6*d*. would not be required to meet the chemists' bill. For instance, although in Manchester and Salford the prescriptions appeared to be in excess over the money available, on the other hand, in Liverpool, St. Helens, Southport, Warrington, and other places there was, in fact, a surplus, and the provision to meet the charges of the chemists was, in fact, adequate. There was another point with which he wished to deal. Some honourable Members represented that when a working man received compensation under the Workmen's Compensation Act for an accident, if that compensation exceeded the amount of sickness benefit to which he was entitled, then that compensation was taken into account in determining the amount of sickness benefit. The fact of the matter was that this provision had had a most valuable effect in increasing the funds available for the working men and insured persons generally for meeting their needs in cases of accidents or in cases of sickness. It had also resulted in actions being set in motion by Approved Societies, and he would give the house one or two examples from those which had been furnished to him. Here was the case of a woman run over by a pair-horse van, and her ankles were broken. The owners denied liability and judgment was obtained against them. There were other cases where £50, £40, and £20 had been awarded. Those sums were recovered at the instigation of the Approved Society, and the result was that instead of sickness benefit being drawn by the members of the society they had recovered money under the Workmen's Compensation Act, and the sickness benefit which would otherwise have been paid to them had gone into the funds of the societies, as the actuaries contemplated that it would.

The amendment was negatived without a division.

MONDAY, MARCH 30TH.

Labour Exchanges and the Supply of Sick Nurses.

Dr. CHAPPLE asked the President of the Board of Trade what precautions were taken by the Labour Exchanges in finding employment for nurses against sending to sick persons untrained, under-trained, or incompetent and dangerous nurses; whether certificates of training at recognised hospitals were demanded by the Exchange before nurses were recommended for or found employment; what kind of certificates were recognised; what hospitals or institutions were deemed competent to issue certificates; and whether, if State registration and a public register of trained nurses would enable the Labour Exchanges to protect the sick against danger and imposition, he would favour legislation to this end.—Mr. BURNS replied: The function of the Labour Exchange is to place persons offering employment and those seeking it into communication with one another. It is for the prospective employer to decide as to the suitability or otherwise of the persons whom he desires to engage, and to indicate to the Exchange the nature of the qualifications required. It is no part of the function of the Labour Exchange to pronounce upon or to recognise the validity of certificates of any kind, but if an employer states that he requires applicants to possess a certificate of any particular kind, this with all other available information is notified to the applicants by the Exchange, and every effort is made to submit only those applicants who have the qualifications desired by the employer.

TUESDAY, MARCH 31ST.

Special Medical Service in Scotland.

Captain WARING asked the honourable Member for St. George's-in-the-East what steps were to be taken to provide special medical service for sparsely populated districts in

Scotland outside the Highland area; and what sum of money was to be devoted to that purpose.—Mr. WEDGWOOD BENN replied: The matter is at present under consideration. I may add that in accordance with the promise given by my right honourable friend provision has been made for the grant in the estimates for the ensuing financial year.

BOOKS, ETC., RECEIVED.

BALE (JOHN), SONS, AND DANIELSSON, London.

Acute General Miliary Tuberculosis. By Professor Dr. G. Cornet (Berlin and Reichenhall). Translated by F. S. Tinker, B.A., M.B., B.C., M.R.C.S., L.R.C.P. Price 6s. net.

BARTH, JOHANN AMBROSIUS, Leipzig.

Handbuch der Tuberkulose. In fünf Bänden. Herausgegeben von Prof. Dr. L. Brauer (Hamburg), Dr. G. Schröder (Neuenberg), Dr. F. Blumenfeld (Wiesbaden). Erster Band, mit 88 Abbildungen, 10 Kurven und 9 farbigen, 1 Stereoskopund 8 schwarzen Tafeln. M.35; geb. M.37.

Der Chirurgische Operationskursus, ein Handbuch für Aerzte und Studierende. Von Prof. Dr. Victor Schmieden (Halle). Dritte Erweiterte und Verbesserte Auflage, mit 467 Abbildungen im Text und einem Vorwort von Prof. Dr. A. Bier (Berlin). Price M.16.

CASSELL AND CO., London, New York, Toronto, and Melbourne.

A System of Surgery. Edited by C. C. Choyce, B.Sc., M.D., F.R.C.S., Dean and Teacher of Clinical Surgery in the London School of Clinical Medicine. Pathological Editor, J. Martin Beattie, M.A., M.D., C.M., Professor of Bacteriology in the University of Liverpool. In 3 vols. Vol. III. Price 21s. net.

What it Means to Marry; or Young Women and Marriage. By Dr. Mary Scharlieb. Price 2s. 6d. net.

Preparation for Marriage. By Walter Heape, M.A., F.R.S. Price 2s. 6d. net.

FISCHER, GUSTAV, Jena.

Lehrbuch der Chirurgie Herausgegeben von Prof. Wullstein (Bochum) und Prof. Wilms (Heidelberg) Vierte umgearbeitete Auflage. Erster Band; Allgemeiner Teil. Chirurgie des Kopfes. Des Halses, Der Brust und Der Wirbelsäule. Mit 383 zum Teil mehrfarbigen Abbildungen. Price, brosch. M.11; geb. M.12.

Zweiter Band. Bauchdecken Leber, Milz, Pankreas, Magen, Darm, Hernien, Harn- und Geschlechts-Organe und Becken, mit 217 zum Teil mehrfarbigen Abbildungen. Price, brosch. M.8; geb. M.9. Dritter Band Extremitäten; Erkrankungen und Verletzungen der Weichteile, Deformitäten, Missbildungen, Verletzungen und Erkrankungen der Knochen und Gelenke, Amputationen und Exartikulationen. Mit 5 Tafeln und 488 zum Teil mehrfarbigen Abbildungen. Price, brosch. M.11; geb. M.12.

Handbuch der Pathogenen Mikroorganismen. Herausgegeben von Dr. W. Kolle (Bern) und Dr. A. von Wassermann (Berlin). Zweite vermehrte Auflage. 64 u. 65 (Schluss-) Lieferung (Band VIII., Seite 721-Schluss, Titel u. Inhalt), mit 4 Tafeln und 27 Abbildungen im Text. Price M.10.50.

Diätetische Behandlung innerer Krankeiten. Von Dr. J. Grober, A.O. Universitätsprofessor für innere Medizin in Jena. Price M.3.50.

GRIFFIN, CHARLES, AND CO., London.

Transactions of the Medico-Legal Society for 1912-13. Edited by William A. Brend, M.A. Cantab., M.B., B.Sc. Lond. Vol. X.

KABITZSCH, CURT, Würzburg.

Geschichte der Nasenheilkunde von ihren Anfängen bis zum 18 Jahr hundert. Von Dr. med. Karl Kassel (Posen) I. Band. Price, brosch. M.10; geb. M.12.

KIMPTON, HENRY, London. A. STENHOUSE, Glasgow.

Practical Sanitation: A Handbook for Health Officers and Practitioners of Medicine. By Fletcher Gardner, M.D., Captain Medical Corps, Indiana National Guard, and James Pearson Simonds, B.A., M.D., Professor of Preventive Medicine and Bacteriology in the University of Texas. Price 18s. net.

LEHMANN, J. F., München.

Das Freilufthaus. Ein Neues Bausystem für Krankenanstalten und Wohngebäude. Von Dr. Med. D. Sarason (Berlin), Prof. H. Chr. Nussbaum (Hannover), Heinrich Becher (Berlin), Dr. N. Bardswell (King Edward VII. Sanatorium, England). Price M.5; geb. M.6.

LIBRAIRIE MALOINE, Paris.

Formulaire de Thérapeutique Clinique. By le Dr. L. Pron, with the collaboration of le Dr. A. Cantonnet. Second edition. Price 6 francs.

LITTLE, JAMES, Collins-street, Melbourne.

Therapeutics, Dietetics, and Hygiene. An Australian Text-book. By J. W. Springthorpe, M.A., M.D. Melb., M.R.C.P. Lond. Vol. I., Hygiene and Dietetics.

MARCUS, A., AND WEBERS, E., Bonn.

Die Moderne Therapie der Gonorrhöe beim Manne. Ein Leitfaden für Studierende und Aerzte. Von Prof. Dr. Paul Asch (Strassburg). Mit 25 Abbildungen im Text. Price M.2.60; geb M.3.20.

MASSON ET CIE., Paris.

Lecons sur la Lithiase Biliaire. By A. Chauffard. Price 9 francs.

MURRAY, JOHN, London.

Therapeutics of the Circulation. By Sir Lauder Brunton, Bt., M.D., D.Sc., LL.D. Edin., LL. Aberd., F.R.C.P., F.R.S. Second edition, with illustrations. Price 5s. net.

STEINHEIL, G., Paris.

Les Nouveaux Horizons de la Science. By H. Guilleminot, Chef des Travaux de Physique biologique à la Faculté de Médecine. Vol. III., La Matiére Vivante, sa chimie.-sa morphologie. Price 6 francs.

STEINKOPFF, THEODOR, Dresden and Leipzig.

Handbuch der Deutschen Schulhygiene. Herausgegeben von Prof. Dr. med. Hugo Selter (Bonn). Mit 149 Abbildungen und Zahlreichen Tabellen. Price M.28; geb. M.30; Leinen geb. M.32; ½ Leder geb.

URBAN UND SCHWARZENBERG, Berlin und Wien.

Spezielle Pathologie und Therapie innerer Krankheiten in 10 Banden, herausgegeben von Friedrich Kraus und Theodor Brugsch in Berlin. Lieferung 21-24 (II. Band 2 Halfte, Seite 493-714 mit 9 farbigen Tafeln. Price, each Lieferung M.2, or 2kr. 40h. Inhalt: Rotz, Maul- und Klauenseuche, Lyssa, Oberstalsarzt Dr. H. Hetsch (Hannover); Mykosen, Dr. Phil. et Med. H. C. Plant (Hamburg); Heine-Medinsche Krankheit, Prof. Dr. Paul H. Römer (Berlin).

VIGOT FRÈRES, Paris.

Localisations Cérébelleuses. By André-Thomas and A. Durupt. With 92 illustrations. Price 6 francs.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

BALKWILL, ALFRED NEWMAN, L.D.S. Eng., has been appointed Honorary Dental Surgeon to the South Devon and East Cornwall Hospital, Plymouth.

BENNER, MINNA A., M.B., Ch.B. Glasg., has been appointed Assistant Schools Medical Officer under the Newport Education Committee.

DENNE, F. VINCENT, M.D., M.R.C.S., has been appointed Dental Surgeon to the West End Hospital for Diseases of the Nervous System.

DIGHTON, ADAIR, M.B., F.R.C.S. Edin., has been appointed Clinical Assistant at the West End Hospital for Diseases of the Nervous System.

DINNICK, OSWALD TILSON, M.B., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Medical Registrar to the Cancer Hospital, Fulham-road, S.W.

EDINGTON, G. H., M.D. Glasg., has been appointed Lecturer in Clinical Surgery at the Glasgow University.

GROGAN, P. J., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Ballymore Eustace District of the county of Kildare.

HARTY, JOHN PERCY INGHAM, M.B., B.Ch. R.U.I., F.R.C.S. Eng., has been appointed Clinical Assistant to the Ear, Nose, and Throat Department at the Bristol Royal Infirmary.

HERAPATH, CHARLES EDWARD KYNASTON, M.D., B.S. Lond., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Registrar to the Bristol Royal Infirmary.

HINCKS, T. E., M.B., Ch.B. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Hay District of the county of Brecknock.

JOYNT, IVOR, B.C. Cantab., has been appointed Clinical Assistant to the West End Hospital for Diseases of the Nervous System.

MACEWAN, WILLIAM, M.B., Ch.B. Glasg., has been appointed Medical Inspector of Schools under the London County Council, and Epidemiologist to the Metropolitan Asylums Board.

NIMBKAR, V. D., L.R.C.P. & S. Edin., has been appointed House Surgeon at the Cossham Memorial Hospital, Kingswood, Bristol.

NORGATE, ROBERT HENRY, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Superintendent to the New Workhouse at Southmead by the Bristol Board of Guardians.

ROSS, W. H., M.B., Ch.B. Vict., has been appointed Medical Officer for the Bowland District of the West Riding.

SAUNDERS, ERNEST GEORGE SYMES, M.D., C.M. Aberd., has been appointed Honorary Deputy Physician to the X Ray Department at the South Devon and East Cornwall Hospital, Plymouth.

TAYLER, F. E., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Trowbridge District of the county of Wilts.

WILLIAMS, GWYNNE, M.S. Lond., F.R.C.S. Eng., has been appointed Assistant Surgeon to University College Hospital.

WILSON, H. R., M.D. Lond., has been appointed Tuberculosis Officer to Southwark Borough Council.

YOUNG, W. A. B., M.B., Ch.B. Vict., has been appointed Medical Assistant to the School Medical Officer of the Blackburn Educational Committee.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BARNSLEY, BECKETT HOSPITAL AND DISPENSARY.—Second House Surgeon, unmarried. Salary £100 per annum, with apartments, board, and laundry.

BARROW-IN-FURNESS, NORTH LONSDALE HOSPITAL.—House Surgeon. Salary £120 per annum, with residence, board, and laundry.

BATH, ROYAL UNITED HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

BEDFORD COUNTY HOSPITAL.—Assistant House Surgeon. Salary £80 per annum, with board, lodging, and laundry.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—Assistant Surgeon.

BETHLEM HOSPITAL.—Resident House Physician, unmarried, for six months. Salary at rate of £25 per quarter, with apartments, board, and washing.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—Two House Surgeons for six months. Salary £75 per annum, with board, residence, and laundry.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £120 per annum, with board, residence, and laundry.

BRADFORD POOR-LAW UNION HOSPITAL AND WORKHOUSE.—Assistant Resident Medical Officer, unmarried. Salary £150 per annum, with rations, apartments, and laundry.

BRADFORD ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, residence, and washing.

BRIGHTON THROAT AND EAR HOSPITAL, Church-street, Queen's-road.—Non-resident House Surgeon for six months. Salary at rate of £150 per annum.

BRISTOL GENERAL HOSPITAL.—House Physician and Casualty House Surgeon for six months. Salary £80 per annum, with board, residence, &c.

BRISTOL ROYAL INFIRMARY.—Two House Surgeons, House Physician, and Throat, Nose, and Ear House Surgeon, all for six months. Salaries at rate of £100 per annum, with board, apartments, and laundry.

BRITISH HOSPITAL FOR MENTAL DISORDERS AND NERVOUS DISEASES, 72, Camden-road, N.W.—Honorary Physician and Reserve Medical Officers.

BROADMOOR STATE CRIMINAL LUNATIC ASYLUM, Crowthorne, Berks.—Junior Assistant Medical Officer, unmarried. Salary £225 per annum, with quarters, coal, gas, and attendance.

BURNLEY, VICTORIA HOSPITAL.—Second House Surgeon for six months. Salary at rate of £80 per annum, with residence, board, and washing.

BURY INFIRMARY.—Junior House Surgeon. Salary £100 per annum, with board, residence, and washing.

CAMBRIDGE, ADDENBROOKE'S HOSPITAL.—House Physician. Salary at rate of £80 per annum, with board, residence, and laundry.

CANCER HOSPITAL (FREE), Fulham-road, London, S.W.—Surgeon.

CAPETOWN, CORPORATION OF THE CITY OF.—Assistant Medical Officer of Health. Salary £500 per annum.

CARLISLE, CITY OF.—Assistant Medical Officer of Health, Tuberculosis and School Medical Officer. Salary £350 per annum.

CARLISLE, CUMBERLAND AND WESTMORLAND ASYLUM, Garlands.—Junior Assistant Medical Officer, unmarried. Salary £200 per annum, with board, lodging, and washing.

CARLISLE NON-PROVIDENT DISPENSARY.—Resident Medical Officer. Salary £200 per annum, with apartments.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board, apartments, and laundry.

CHICHESTER, WEST SUSSEX COUNTY MENTAL HOSPITAL.—Junior Assistant Medical Officer. Salary £200 to £250 per annum, with apartments, board, laundry, and attendance.

CITY OF LONDON LYING-IN HOSPITAL, City-road, E.C.—Resident Medical Officer for four months. Salary at rate of £50 per annum, with board, lodging, and washing.

CORNWALL EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £250 per annum.

CROYDON GENERAL HOSPITAL.—Anæsthetist and Second House Surgeon. Salary £80 per annum, with board, laundry, and residence.

DAVOS PLATZ, SWITZERLAND, QUEEN ALEXANDRA SANATORIUM.—Resident Assistant Medical Officer. Salary £100 per annum, with board, residence, and washing.

DERBY COUNTY ASYLUM, Mickleover, Derby.—Junior Assistant Medical Officer. Salary £200 per annum, with board, lodging, and washing.

DEVONPORT, ROYAL ALBERT HOSPITAL.—House Surgeon, unmarried. Salary £50 for first six months, £75 for second six months, and at rate of £150 per annum during second year Also Assistant House Surgeon, unmarried. Salary at rate of £75 per annum, with board and laundry.

DONCASTER ROYAL INFIRMARY AND DISPENSARY.—Assistant House Surgeon. Salary £100 per annum, with board, apartments, and washing.

DORCHESTER COUNTY ASYLUM.—Third Assistant Medical Officer. Salary £250 per annum, with board, lodging, &c.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Junior House Surgeon. Salary £65 per annum, with board and washing.

DUNDEE CITY.—Assistant Tuberculosis Medical Officer. Salary at rate of £300 per annum.

FOLKESTONE, ROYAL VICTORIA HOSPITAL.—Resident House Surgeon. Salary £100 per annum, with apartments, board, and laundry.

GLASGOW, HAWKHEAD ASYLUM, Crookston.—Second Assistant Medical Officer. Salary £200 per annum, with apartments, board, and laundry.

GRAVESEND HOSPITAL.—House Surgeon. Salary £120 per annum, with board and residence.

GREAT YARMOUTH HOSPITAL.—House Surgeon, unmarried. Salary £140 per annum, with board, lodging, and washing.

GREENWICH TUBERCULOSIS DISPENSARY.—Medical Officer. Salary at rate of £400 per annum.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

HALIFAX ROYAL INFIRMARY.—Second House Surgeon and Third House Surgeon, unmarried. Salary £100 and £80 per annum respectively, with residence, board, and washing.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.—Resident Medical Officer. Salary £200 per annum, with board, residence, and laundry. Also House Physician and House Surgeon at Inpatients' Department, Haverstock-hill; and Casualty Officer at Outpatients' Department, Camden Town, for six months. Salaries at rate of £70 per annum, with board, residence, and laundry.

HASTINGS, EAST SUSSEX HOSPITAL.—Assistant House Surgeon. Salary at rate of £80 per annum, with residence, board, and washing.

HELLINGLY, EAST SUSSEX COUNTY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, washing, and attendance.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—House Physician for six months. Salary 30 guineas.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.—Assistant Casualty Medical Officer, unmarried, for six months. Salary £30, with board, residence, &c.

HUDDERSFIELD ROYAL INFIRMARY.—Assistant House Surgeon. Salary £80 per annum, with board, rooms, and washing.

HULL ROYAL INFIRMARY.—House Physician, unmarried. Salary £100 per annum, with board and apartments.

HUNTINGDONSHIRE COUNTY COUNCIL.—Assistant County Medical Officer and Assistant School Medical Officer (female). Salary £300 per annum.

INFANTS HOSPITAL, Vincent-square, Westminster.—Assistant Physician.

ITALIAN HOSPITAL, Queen-square, W.C.—Honorary Surgeon for In-patients.

KETTERING AND DISTRICT GENERAL HOSPITAL.—Resident Medical Officer, unmarried. Salary £120 per annum, with board, residence, &c.

KING EDWARD MEMORIAL HOSPITAL, Ealing, W.—Resident Medical Officer for six months. Salary at rate of £80 per annum, with board, residence, and laundry.

LANARK COUNTY SANATORIUM, Stonehouse.—Resident Medical Officer. Salary £300 per annum, with board, &c.

LEEDS GENERAL INFIRMARY.—Ophthalmic House Surgeon for six months. Salary £50 per annum, with board, residence, and laundry.

LEICESTER ROYAL INFIRMARY.—Second House Surgeon, Assistant House Surgeon, and Assistant House Physician for six months. Salaries: House Surgeon at rate of £120 per annum; Assistant House Surgeon and Assistant House Physician at rate of £100 per annum, with board, apartments, and washing.

LIVERPOOL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Mount Pleasant.—Honorary Assistant Physician.

LIVERPOOL UNIVERSITY, FACULTY OF MEDICINE.—George Holt Chair of Physiology. Salary £700 per annum.

LIVERPOOL WORKHOUSE HOSPITAL, Brownlow Hill.—Resident Assistant Medical Officer. Salary £140 per annum, with apartments, &c.

MAIDSTONE, KENT COUNTY ASYLUM.—Fourth Assistant Medical Officer, unmarried. Salary £200 per annum, with quarters, attendance, washing, &c.

MANCHESTER, ANCOATS HOSPITAL, Mill-street.—Honorary Physician and Honorary Surgeon.

MANCHESTER CHILDREN'S HOSPITAL (OUT-PATIENTS' DEPARTMENT), Gartside-street.—Medical Officer. Salary £180 per annum.

MANCHESTER, COUNTY ASYLUM, Prestwich.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, attendance, and washing.

MANCHESTER ROYAL EYE HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with residence, board, and washing.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—Assistant Dental Surgeon.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W.—Assistant Dental Surgeon.

NEWARK-UPON-TRENT HOSPITAL.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, lodging, and laundry.

NEWCASTLE-UPON-TYNE CITY HOSPITAL FOR INFECTIOUS DISEASES.—Resident Medical Assistant. Salary £125 per annum, with board, lodging, &c.

NORWICH, NORFOLK AND NORWICH HOSPITAL.—Casualty Officer, unmarried, for six months. Salary £80 per annum, with board, lodging, and washing.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W.—House Physician and House Surgeon for six months. Salary at rate of £52 10s. each per annum, with board and residence.

POPLAR HOSPITAL FOR ACCIDENTS, Poplar, E.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board and residence.

PORTSMOUTH CORPORATION MENTAL HOSPITAL.—Assistant Medical Officer, unmarried. Salary £225 per annum, with board, apartments, attendance, and washing.

PRESTON, COUNTY ASYLUM, Whittingham, Lancs.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, &c.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Resident Medical Officer. Salary £100 per annum, with board, residence, and laundry.

ROCHDALE INFIRMARY.—Senior House Surgeon, unmarried. Salary £110 per annum, with board, residence, and laundry.

ROTHERHAM HOSPITAL.—Assistant House Surgeon. Salary £100 per annum, with board, lodging, and washing.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Two Examiners in Elementary Biology, Three Examiners in Anatomy, Two Examiners in Physiology, Four Examiners in Midwifery, One Examiner for Part I. and One Examiner for Part II. for Diploma in Public Health, One Examiner in Bacteriology, and One Examiner in Diseases and Hygiene of the Tropics. Also Examiners in Anatomy and Physiology for the Fellowship.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—Male and Female House Physicians and House Surgeons and Female Junior Obstetric Assistant for six months. Board, lodging, and washing provided. Also Female Assistant Anæsthetist for six months. Salary £50 per annum.

RYDE, ROYAL ISLE OF WIGHT COUNTY HOSPITAL.—Vacancy on Honorary Medical Staff.

ST. MARK'S HOSPITAL FOR CANCER, FISTULA, AND OTHER DISEASES OF THE RECTUM, City-road, E.C.—Half-time Pathologist and Bacteriologist. Salary £100 per annum. Also House Surgeon. Salary £80 per annum, with board, lodging, and washing.

ST. MARYLEBONE INFIRMARY, Rackham-street, Notting Hill, W.—Third Assistant Resident Medical Officer, unmarried, for six months. Salary £70, with apartments, rations, and washing.

ST. PANCRAS SOUTH INFIRMARY AND WORKHOUSE, Pancras-road.—Senior Assistant Medical Superintendent and Senior Assistant Medical Officer. Salary at rate of £175 per annum, with residential allowances.

SALFORD ROYAL HOSPITAL.—Junior House Surgeon and Casualty House Surgeon for six months. Salary at rate of £65 per annum each, with board and residence.

SALFORD ROYAL, THE MANCHESTER CHILDREN'S, AND THE MANCHESTER NORTHERN HOSPITALS.—Joint Pathologist. Salary £250 per annum.

SALISBURY INFIRMARY.—Assistant House Surgeon, unmarried. Salary £50 per annum, with apartments, board, lodging, and washing.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, &c.

SHEFFIELD, EAST END BRANCH OF THE CHILDREN'S HOSPITAL.—House Surgeon for Out-patient Department only. Salary £75 per annum, with board and residence.

SHEFFIELD ROYAL INFIRMARY.—House Surgeon and Ophthalmic House Surgeon for six months. Salary £80 per annum each, with board and residence.

SOUTH-EAST ESSEX UNITED DISTRICTS.—Medical Officer of Health for Rural District Councils of Chelmsford, Maldon, and Rochford. Salary £620 per annum.

SOUTH INDIAN RAILWAY COMPANY.—District Medical Officer. Salary Rs.500 per month.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon. Salary at rate of £100 per annum, with rooms, board, and washing.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £120 per annum, with board, lodging, and washing.

SUNDERLAND BOROUGH ASYLUM, Ryhope.—Assistant Medical Officer. Salary £200 per annum.

WALSALL AND DISTRICT HOSPITAL.—Senior House Surgeon and Assistant House Surgeon. Salary £150 and £110 per annum respectively, with board, residence, and laundry.

WARRINGTON, LANCASHIRE COUNTY ASYLUM, Winwick.—Locum Tenens Medical Officer, unmarried, for about five months. Salary 5 guineas per week, with apartments, board, attendance, and washing.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Two Resident Casualty Officers for six months. Board, lodging, &c., provided. Also Honorary Medical Registrar.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary £100 per annum, with board, apartments, and washing.

WILTS COUNTY COUNCIL.—Assistant School Medical Inspector. Salary £300 per annum.

WOKINGHAM, PINEWOOD SANATORIUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, residence, and laundry.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.—House Surgeon. Salary £100 per annum, with apartments, board, and laundry.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Resident Medical Officer. Also House Surgeon. Salary in each case £125 per annum, with board, rooms, and laundry.

WOMEN'S HOSPITAL FOR CHILDREN, 688, Harrow-road, W.—Female Assistant Anæsthetist. Salary £10. Also Surgical Clinical Assistant to Out-patients.

YORK COUNTY HOSPITAL.—House Surgeon for six months. Salary at rate of £100 per annum, with board, residence, &c.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Acts at Cavan, in the county of Cavan; at Pontyberem, in the county of Carmarthen; and at Watford, in the county of Herts.

Births, Marriages, and Deaths.

BIRTHS.

AVELINE.—On March 23rd, at Cotford House, Norton Fitzwarren, the wife of Henry T. S. Aveline, M.D., of a daughter.

SMITH.—On March 25th, at Heavitree-road, Plumstead Common, S.E., the wife of F. Wybourn Smith, M.R.C.S., L.R.C.P., of a son.

STOTT.—On March 25th, at Addison-road, North Kensington, W., the wife of Dr. Arnold W. Stott, of a daughter.

TRESAWNA.—On March 18th, at Leven House, Abergavenny, the wife of Dr. W. S. Tresawna, of a son.

MARRIAGES.

STEWART—STONE.—At St. Columba's, Pont-street, W., by the Rev. Dr. Fleming, William J. J. Stewart, M.D., Grovend, Neasden, to Elsie, third daughter of the late S. H. Stone, of The Heath, Sudbury, Suffolk.

DEATHS.

BRACHI.—On March 29th, at Hampstead, Francis Brachi, M.R.C.S., L.R.C.P., aged 30 years.

CLARKE.—On March 28th, at Oakleigh, Eastbourne, William Bruce Clarke, M.B. Oxon., F.R.C.S., aged 64 years.

HOPKINS.—On March 30th, very suddenly, at Careg Cennen, Llandilo, South Wales, Brigade Surgeon-Lieutenant-Colonel Edward Hopkins, aged 77 years.

MACKINNON.—On March 25th, at Sorrento, Italy, Daniel Mackinnon, M.B., Ch.B., D.P.H., of Lagos, Nigeria, aged 35 years.

ROBERTS.—On March 19th, at Abergele, N. Wales, John Lloyd Roberts, M.B.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE OPIUM TRAFFIC.

Mr. R. MacLeod Hodgson, H.M. Consul at Vladivostok, in his annual report to the Foreign Office, just received, writes on this subject as follows: "Poppy for the manufacture of opium has been grown in the Ussuri region from time immemorial, and it would indeed appear that the local climate is particularly favourable to the poppy, and that the opium obtained from this country is of exceptionally high quality. In 1897, according to a report from the Russian Consul in Chefoo, 200 poods of opium from the Maritime Province were imported into China annually. The cultivation of the poppy is extremely profitable both to the peasant owners, who obtain a rental of as much as 300r. per dessiatin (2·70 acres) for their land, and to the Chinese farmers. It takes place mainly among the Cossack population inhabiting the lands in the Ussuri district bordering the Chinese frontier, and on the coast from Soutchan to Olga. Instances are quoted in the official press of the population of settlements in the Ussuri country being compelled to go into Chinese towns across the frontier to purchase flour and oats, the best land in their possession having been given over for growing poppy. This cultivation of the poppy brings various evils in its train; the land becomes speedily exhausted, and a highly undesirable Chinese element in the form of Hunghuzes is attracted; moreover, the peasantry, receiving so high a rental for their lands, are encouraged to live on the revenues so obtained, and tend to become indolent and demoralised. It does not appear that the use of the drug has made any appreciable inroad among the Russian population. It has certainly had a most deleterious influence among the declining native population. The evil is a growing one, and the present policy of substituting Russian for Chinese labour is accentuating it, since the Chinese, who are no longer able to find work in the centres, turn to this means of obtaining a subsistence. It is unlikely that an accurate estimate of the land under poppy has been made, but, according to figures given officially, in 1910 it was 826 acres for the Maritime Province, of which 324 acres were in the Olga district. In 1911, 1865 acres were sown, and in 1912 some 10,000 acres were under poppy in the cultivated territory along the coasts, and the rental paid by the Chinese had grown in three years from 50 to 200r. the dessiatin.

"Russian law prohibits the sale of opium except when sold by chemists for medicinal purposes, but there is no doubt but that the traffic in the drug is carried on. The dealers are Chinese, and the opium is exported over the land frontier into Manchuria, and by sea by steamers trading to Yellow Sea ports, being either carried by passengers upon their persons or despatched under a false designation. It is also imported into this country from Manchuria, and, when detected by the Russian customs, it is seized and put up to auction, the buyer having to engage that it shall not be re-exported to China. It is very open to doubt whether this understanding is generally observed. The price of opium per pound, Russian, is from 12 to 15r. in Nikolsk, and in Vladivostok up to 30r., and there is no difficulty in obtaining it in reasonably large quantities.

"The spread of the business is alarming not only local authorities but St. Petersburg also. During 1913 the question was being temporarily dealt with by ordering the destruction of poppy crops before the maturing of the flower. Meanwhile, legislative powers are being sought to put a stop to the business, and it is intended to pass a law forbidding the cultivation of the poppy in any part of the Pri-Amur or the Trans-Baikal Province. For any breach of the law the grower is to be liable to a fine of 300r. with imprisonment from one to six months for each dessiatin or part of a dessiatin cultivated, while the owners or lessees of the land are to be fined on the same scale, without imprisonment. Persons guilty of preparing, purchasing, storing, and selling opium or smoking accessories, as also persons providing accommodation for the smoking of opium, are to be liable to imprisonment for one to four months and to a fine up to 500r. The import of opium appliances for smoking is to be absolutely forbidden."

THE CICELY NORTHCOTE TRUST.

THIS Trust, which has recently issued its fourth annual report, is an independent fund established in connexion with St. Thomas's Hospital for providing such sympathetic assistance to patients as by relieving their minds shall enable them to profit fully by professional treatment given by the hospital. The necessitous patient's home is visited during his enforced absence, he receives assurance

that there is food in the house and that the rent is paid, and an intermediary, if necessary, is forthcoming between him and his employer. If the patient is a woman, the mental distress as to what is to become of her husband and children—a distress which often outweighs the dread of any operation—is overcome, for her children are looked after and the necessary homework is provided for in her absence; or if the children are the patients the mother is instructed how to take proper care of them on their discharge. The burden of the pregnant unmarried woman is lightened. The Tuberculosis Department, again, benefits by the keeping of temperature records, the supervision of the patient's habits and needs, assistance in housework and proper diet for out-patients, the making it possible for patients to get away to a sanatorium by looking after their households, and on their return seeing that the discipline learned is practised, and helping to find suitable work. The backbone of this work is an endowment fund of £15,000, provided by Mr. H. H. Stafford Northcote. Last year 6440 patients were talked to in the wards, and from information thus gained 1094 were visited in their homes and assisted in various ways, while 600 patients were referred to the Charity Organisation Society, 200 to the clergy, and 200 to the Invalid Children's Aid Society. But much as is being done, more could be accomplished by the aid of wider donations and subscriptions. The secretary of the association is Mr. G. Q. Roberts (one of the trustees), St. Thomas's Hospital.

A DISCLAIMER.

To the Editor of THE LANCET.

SIR,—My attention has been drawn to an advertisement of a firm of opticians in the last issue of the *Fishing Gazette* in which certain spectacles are commended to the public by a fulsome reference to my name.

I would like to take an early opportunity of pointing out that I had no knowledge whatever of the issue of this advertisement; and I have written to the editor of the journal, and to the firm in question, requesting that they will refrain from reproducing it.

I am, Sir, yours faithfully,
Harley-street, W., March 26th, 1914. WM. ETTLES.

TO MEDICAL MOTORISTS.

To the Editor of THE LANCET.

SIR,—Will some of your readers give me their experiences of the Lagonda and the Studebaker coupés, particularly with regard to their hill-climbing power under adverse conditions?

I am, Sir, yours faithfully,
March 31st, 1914. "WAITING."

THE YUNGCHUN HOSPITAL, FUKIEN, CHINA.

THE medical report of the Yungchun Hospital, Fukien, belonging to the English Presbyterian Mission, shows the terrible amount of venereal disease prevailing. Salvarsan has been used with varied results in 20 cases. In an imported case of yaws it gave excellent results. Experimental work with Williams's leprolin, supplied by the director of the Bombay Bacteriological Laboratory, will be shortly published. The results are variable. Work with emetine hydrochloride in amœbic dysentery has fully proved its worth. Diphtheria has for the first time appeared in epidemic form in Fukien from the Straits. The staff consists of one medical missionary, Dr. J. Preston Maxwell, with one Chinese assistant, Mr. S. S. Ng. There are no nurses but nine students. The in-patients numbered 1071 males and 161 females; out-patients 2242 males and 591 females; domiciliary visits in all 187. Surgical operations numbered 359 general, 67 eye, and 16 obstetric and gynæcological. There were 705 vaccinations and plague inoculations, and 167 opium smokers were treated. The hospital contains 125 beds. As the local income was $4705 against expenses $4696, the cost to the mission funds was *nil*.

LEGIBLE THERMOMETERS.

To the Editor of THE LANCET.

SIR,—I shall be glad if any of your readers can inform me where I can obtain clinical thermometers that can be easily read by patients.—I am, Sir, yours faithfully,

JOHN TEARE, M.D. Liverp.,
Tuberculosis Officer, Notts County Council.
Shire Hall, Nottingham, March 27th, 1914.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

THE following Congresses, Conferences, and Exhibitions are announced.

In 1914:—

April 13th and 14th (Berlin).—Thirteenth Congress of the German Orthopædic Society.
,, 13th–18th (New York).—Fourth Congress of the International Surgical Society. (President: Prof. Depage, Bruxelles.)
,, 15th–18th (Berlin).—Forty-third Congress of the German Surgical Society.
April 19th–21st (Berlin).—"Jubilee" Congress of the German Röntgen Society.
,, 20th–23rd (Wiesbaden).—Thirty-first German Congress for Internal Medicine.
,, 27th–May 1st (London, Royal Horticultural Hall).—Nursing Conference and Exhibition.
May 1st–Nov. 1st (Lyons).—International Town Hygiene Exhibition.
,, 15th–Oct. 15th (Berne).—Swiss National Exhibition.

Medical Diary for the ensuing Week.

SOCIETIES.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, Lecture Theatre of the Society, 17, Bloomsbury-square, W.C.

TUESDAY.—8 P.M., Paper:—Prof. G. T. Morgan: Organic Derivatives of Arsenic and Antimony.

RONTGEN SOCIETY, Institution of Electrical Engineers, Victoria Embankment, W.C.

TUESDAY.—8.15 P.M., Paper:—Dr. R. T. Beatty: The Energy of the Röntgen Ray.

SOUTH-WEST LONDON MEDICAL SOCIETY, Bolingbroke Hospital, Wandsworth Common, S.W.

WEDNESDAY.—9 P.M, Dr. T. B. Hyslop: Neurasthenia and its Causation.

NORTH LONDON MEDICAL AND CHIRURGICAL SOCIETY, Board Room of the Great Northern Central Hospital, Holloway-road, N.

THURSDAY.—8.30 P.M., Clinical Evening.

UNITED SERVICES MEDICAL SOCIETY, Royal Army Medical College, Grosvenor-road, S.W.

THURSDAY.—5 P.M., Major J. Oldfield, R.A.M.C.(T.): The Scope of the Field Ambulance as a Training School.

WIMBLEDON AND DISTRICT MEDICAL SOCIETY, Johnston's Rooms, 6, Broadway, Wimbledon, S.W.

FRIDAY.—9 P.M., Address:—Dr. C. O. Hawthorne: The Examination of the Nervous System in Cases of Suspected Malingering.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. S. E. Dore: Clinique (Skin). 5.15 P.M., Lecture:—Dr. H. C. Cameron: Types of Disorders of Nutrition in Infancy.
TUESDAY.—4 P.M., Dr. W. J. Fenton: Clinique (Medical). 5.15 P.M., Lecture:—Dr. E. Cautley: The Neurotic Temperament in Children.
WEDNESDAY.—4 P.M., Mr. R. Howard: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. M. Leslie: The Effect of Sex in Modifying the Incidence and Prognosis of Disease.
THURSDAY.—4 P.M., Mr. J. E. Adams: Clinique (Surgical). 5.15 P.M., Clinical Demonstration:—Mr. P. J. Freyer: Urinary Surgical Diseases.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman: Diseases of the Eye.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women, and Diseases of the Eye.
THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Armour: Operations, and Diseases of the Eye.
FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patient (Mr. H. Gillespie). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Gynæcological (Dr. Banister). 3 P.M., Medical In-patients (Dr. R. M. Leslie).
TUESDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. Howell Evans); Nose, Throat, and Ear (Mr. H. D. Gillies). X Ray and Electrical Methods (Dr. Metcalfe). 3.30 P.M., Medical In-patient (Dr. Whiting).
WEDNESDAY.—Clinics:—2 P.M., Throat Operations (Mr. Gillies). 2.30 P.M., Children's Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 5.30 P.M., Eye Operations (Mr. Brooks).
THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. B. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson); X Rays and Electrical Methods (Dr. Metcalfe).
FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. H. Gillespie); Eye (Mr. E. A. Dorell). 3 P.M., Medical In-patient (Dr. G. P. Chappel).

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—Out-patient Demonstrations:—10 A.M. Dr. H. B. Carlill: Medical. Mr. H. Curtis: Surgical. 12 noon, Mr. G. N. Biggs: Throat, Nose, and Ear.—2.15 P.M., Mr. W. Turner: Surgery. 3 P.M., Mr. W. Turner: Operations. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4.15 P.M., Mr. R. Lake: Ear and Throat.

TUESDAY.—Out-patient Demonstrations:—10 A.M., Medical. Mr. Cole: Surgical. 12 noon, Dr. H. MacCormac: Skin.—2 P.M., Mr. L. McGavin: Operations. 2.15 P.M., Mr. R. Carling: Surgery. 3.15 P.M., Dr. G. Rankin: Medicine. 4.15 P.M., Sir Malcolm Morris: Skin.

WEDNESDAY.—Out-patient Demonstrations: 10 A.M., Dr. H. B. Carlill: Medical. Mr. Cecil Rowntree: Surgical. 11 A.M., Mr. R. B. Bickerton: Eye.—2 P.M., Mr. L. V. Cargill or Mr. Choyce: Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.15 P.M., Mr. Cargill: Eye Clinique. 4.30 P.M., Mr. C. C. Choyce: Surgery.

THURSDAY.—Out-patient Demonstrations:—10 A.M., Dr. H. R. Prentice: Medical. Mr. H. Curtis: Surgical. 12 noon, Mr. G. N. Biggs: Throat, Nose, and Ear.—2 P.M., Mr. R. Carling or Mr. W. Turner: Operations. Dr. A. Davies: Pathological Demonstration. 3.15 P.M., Dr. R. Wells: Medicine.

FRIDAY.—Out-patient Demonstrations:—10 A.M., Dr. C. E. Zundel: Medical. Mr. Cole: Surgical. 12 noon, Dr. H. MacCormac: Skin.—2 P.M., Mr. L. McGavin: Operations. 2.15 P.M., Sir John Rose Bradford: Medicine. 3.15 P.M., Mr. L. McGavin: Surgery.

SATURDAY.—Out-patient Demonstrations: 10 A.M., Dr. H. R. Prentice: Medical. Mr. Cecil Rowntree: Surgical. 11 A.M., Mr. R. B. Bickerton: Eye.—10 A.M., Col. Barry: Radiography.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, Medical School, City-road, E.C.

MONDAY.—1.30 P.M., Department for the Prevention of Consumption. 2 P.M., Cardiac Department, Dr. Stott; Out-patient Department, Dr. Phear, Dr. S. Thompson. 3 P.M., Wards, Dr. Phear.

TUESDAY.—9 A.M., Laryngological Department, Mr. Mant. 1.30 P.M., Department for the Prevention of Consumption. 2 P.M., Out-patient Department, Dr. M. Leslie, Dr. B. King; Operations, Mr. A. Evans. 3 P.M., Wards, Dr. White. 4 P.M., Wards, Dr. M. Leslie.

WEDNESDAY.—2 P.M., Wards, Dr. A. Davies; Out-patient Department, Dr. Drysdale, Dr. Kellie. 4 P.M., Wards, Dr. Drysdale. 4.30 P.M., Roentgen Ray Department, Dr. Jordan.

THURSDAY.—9.30 A.M., Dental Department, Mr. G. Thomson. 10 A.M., Cardiac Department, Dr. Stott. 1.30 P.M., Department for the Prevention of Consumption. 2 P.M., Out-patient Department, Dr. Phear, Dr. S. Thompson. 4.30 P.M. Laryngological Department, Mr. Mant.

FRIDAY.—1.30 P.M., Department for the Prevention of Consumption. 2 P.M., Wards, Dr. Calvert; Out-patient Department, Dr. M. Leslie, Dr. B. King.

SATURDAY.—10 A.M., Out-patient Department, Dr. Drysdale, Dr. Kellie. 11.30 A.M., Roentgen Ray Department, Dr. Jordan.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, April 1st, 1914.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Mar. 26	29·12	N.E.	0·15	79	52	40	42	43	Cloudy
,, 27	29·70	N.W.	0·02	63	48	41	42	43	Cloudy
,, 28	30·08	S.W.	...	89	54	38	41	43	Fine
,, 29	29·95	S.E.	...	62	49	43	43	45	Cloudy
,, 30	30·06	S.W.	0·06	70	54	45	47	49	Raining
,, 31	30·24	S.W.	0·05	107	67	49	51	54	Fine
April 1	29·97	S.W.	...	105	66	49	50	55	Fine

The following journals, magazines, &c., have been received:—Bulletin Mensuel de la Office Internationale d'Hygiène Publique, Dublin Journal of Medical Science, Ophthalmoscope, Journal of State Medicine, Proceedings of the Chelsea Clinical Society, Archives of the Roentgen Ray, Journal of the Royal Sanitary Institute, Indian Medical Gazette, Canadian Medical Association Journal, British Review, Medical Review of Reviews, Archives of Internal Medicine, Bristol Medico-Chirurgical Journal, Post-Graduate (New York), Journal of Obstetrics and Gynæcology of the British Empire, Medical Journal of South Africa, South African Medical Record.

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